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VOL 1



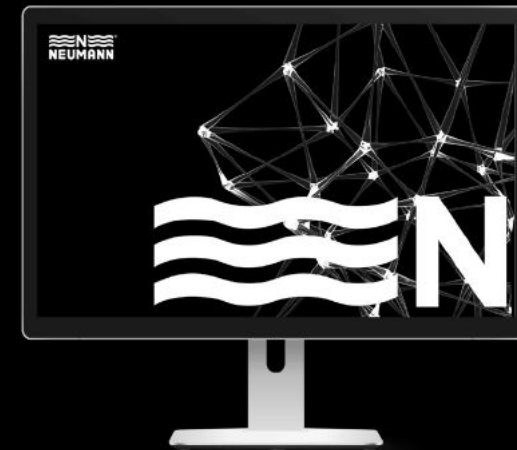
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VOL 2



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VOL 3



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VOL 4



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VOL 5



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VOL 6



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VOL 1

Weatherproof call stations

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VOL 2

Call stations

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VOL 3

Components & Accessories

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VOL 4

Loudspeakers

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VOL 5

SOS pillars

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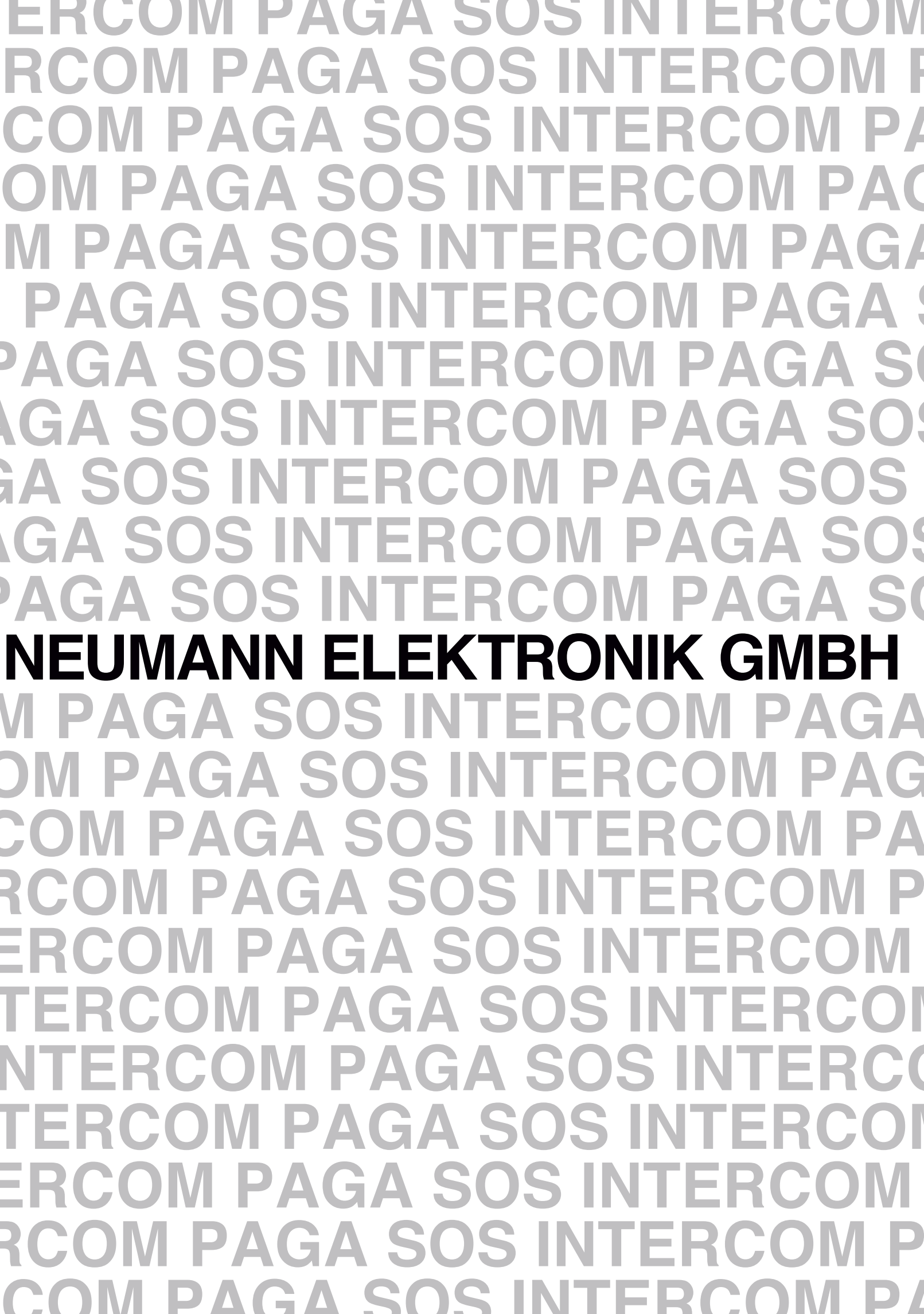


VOL 6

**Emergency call
and information pillars**

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SPI-22 Platform / DS-22 Components

Neumann SPI-22 Platform	6
Neumann DS-22 Components	10
Technology overview	13
Scheme	18

DS-22 Adapter Gateways

DS-22 U _{k0} / U _{p0} / Analogue / PA-Control IP Adapter Gateway	22
DS-22 NES92 IP Adapter-Gateway	26

DS-22 Call stations

DS-22 MTSD IP Multifunctional desk call station	30
DS-22 MTSD IP F+ Multifunctional desk call station with membrane keypad	36
DS-22 MRS IP Multifunctional rack-mount call station 19 inch	42
DS-22 MDES IP Multifunctional panel-mount call station	48
DS-22 TTSD IP Gate and door call station	54
DS-22 WFD IP Weatherproof digital call station (120mm width)	60
DS-22 WFDR IP Weatherproof digital call station (100mm width)	66
DS-22 WFDK IP Weatherproof digital compact call station	72
DS-22 DKS IP Digital crane call station	78
DS-22 IO fault indication module IP	84

Technology in detail	84
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SOS + SPS + PA/GA + Intercom = SPI-22

To seamlessly unite the functions of SOS call, public address, intercom and PLC in a modern web interface and a single adaptive base high performance hardware.

A digital communication system for intercom, PA and alarming, specifically designed for industrial and railway requirements. With connection of telecommunication VoIP stations as well as with standardised open IP/SIP interface, also in full duplex.

Neumann SPI-22 Platform

Meet our revolutionary technology that is redefining the field of communications: Neumann Elektronik SPI-22 platform.

Developed in 2022 by our experienced engineers, the SPI-22 platform seamlessly combines SOS call, public address, intercom and PLC functions into a single adaptive base high-performance hardware in a single web interface.

Say goodbye to multiple software tools, devices and knotted connections. With the SPI-22 platform, your communication becomes simple and efficient. Everything you need is now bundled into a single hardware and software platform that fully meets your communication and security needs.

The SPI-22 platform is modular and can be easily expanded to keep pace with your growing needs. Whether you want to add additional features or include new locations, the flexibility of the SPI-22 platform makes it possible.

Enjoy full integration of DS-22 components and select DS-6 components for seamless interoperability.

Simplify your infrastructure and streamline your workflow through the functionality of these two systems with the SPI-22 platform.

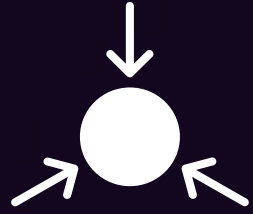
The SPI-22 system's decentralised web interface gives you ultimate convenience and control. Control all connected call stations, speaker targets, SIP telephony and actuators (e.g. gate control, strobe lights, etc.) via an internal MQTT broker from the convenience of a freely selectable decentralised access point.

No matter where you are, you always have full control over your communication.

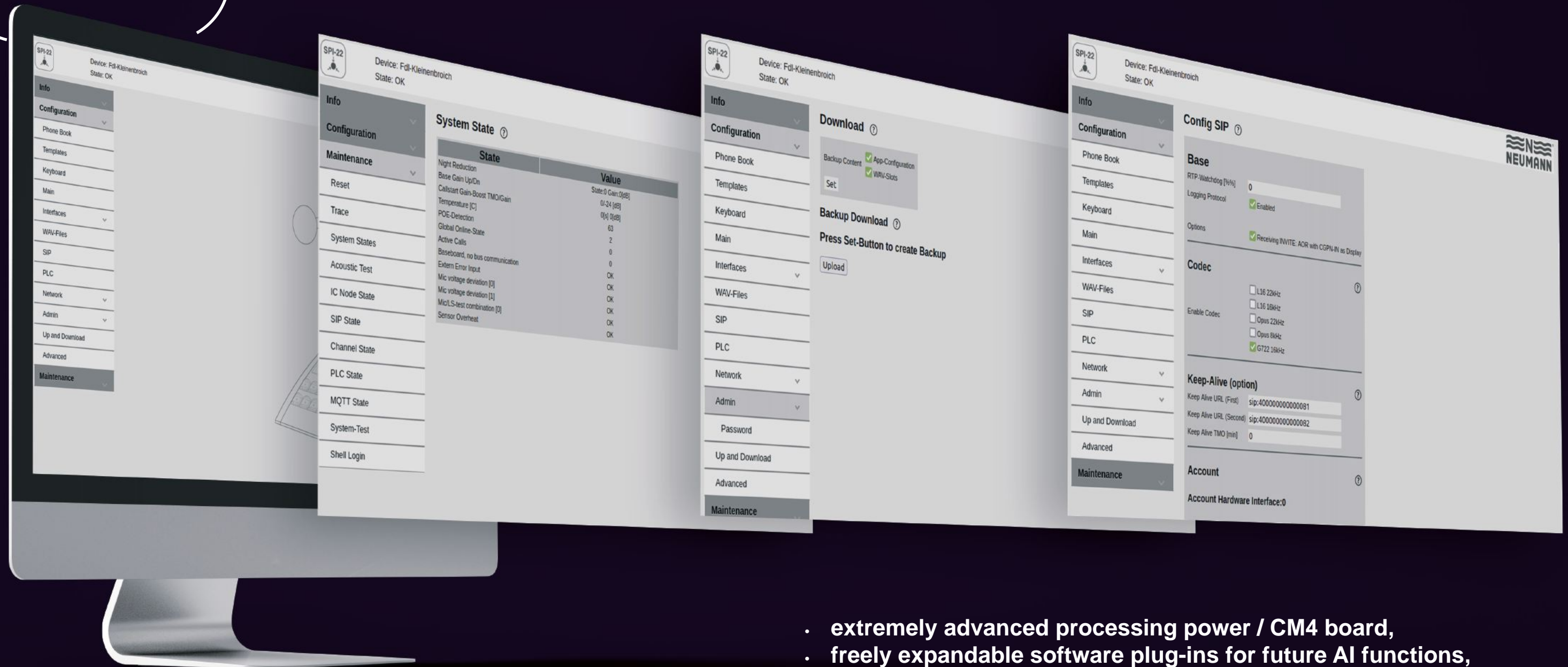
Discover the power of unity, the simplicity of control and the future of communication.

Neumann Elektronik SPI-22 - Innovation meets convenience.

SPI-22



- Decentralised web interface,
- user-friendly UI,
- modular design,
- full integration of DS-22 components,
- Integration of selected DS-6 components,



- extremely advanced processing power / CM4 board,
- freely expandable software plug-ins for future AI functions,
- duplex / semi duplex / simplex,
- optional FIR filter technology with adaptive algorithms for complex audio solutions,
- optional WLAN / LTE / GSM expansion modules,
- and much more...



Neumann DS-22 Components



Advantages of DS-22 components

- Decentralised distribution of information through uniform control software installed on each terminal
- Serverless connection of SIP terminals
- Data transmission via a standard IP network
- Modular system structure with low wiring effort
- Communication can be in duplex / half-duplex or simplex PTT
- Connection of actuators and sensors directly via network-compatible IoT modules
- Fast transmission of voice messages
- Good syllable intelligibility/speech quality: 100Hz to 22kHz bandwidth
- Simple assignment of voice connections
- Simple operation and configuration
- Integrated voice memory
- 1 LAN connections per call station / 1 service interface
- Connection of analogue / U_{k0} / U_{p0} call stations via DS-22 Gateway
- The DS-22 Intercom System is suitable for a temperature range from -10°C to +55°C
- Web interface for smart programming

System safety

- High system reliability thanks to the IP spanning tree system
- Cyclical monitoring of system performance
- Monitoring of the amplifiers
- Decentralised interaction without „single point of failure“

System efficiency

- Low (basic) investment, especially for small and smaller systems with high functionality (< 250 subscribers)
- Integration into the existing infrastructure of the analogue intercom system
- Integration of DS-6 / TIMM systems
- Easy maintenance and servicing
- Fast commissioning & planning
- Lower costs for installation and maintenance

Network capacities

Minimum 100Mbit- network for about 200 call stations, for each UDP uni/multicast connection:

- G711 codec, 8kHz, 64kbps network net bandwidth
- G722 codec, 16kHz, 64kbps network net bandwidth
- L16 Codec, 22kHz, 352kbps Network Net Bandwidth
- L16 Codec, 16kHz, 256kbps Network Net Bandwidth
- Opus Codec, 8kHz, 6kbps Network Net Bandwidth
- Opus Codec, 22kHz, 32kbps Network Net Bandwidth
- Opus Codec, 48kHz, 512kbps Network Net Bandwidth (Broadband)

Innovative technology

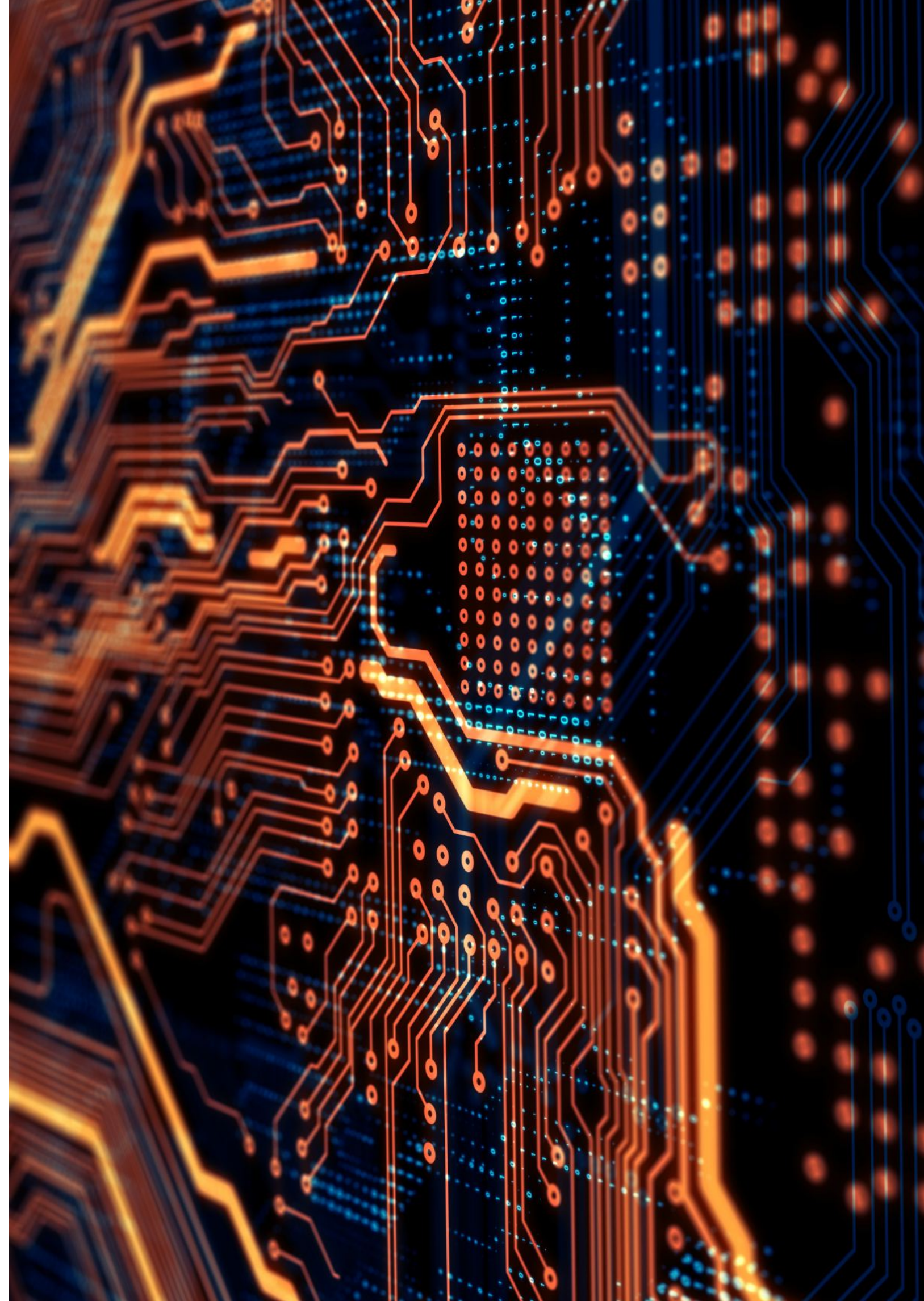
- Decentralised communication systems.
- Identical control software in all DS-22 call stations.
- The function of each terminal is set via the configuration of an intelligent unit.
- All status indicators for incoming calls or busy signals have been carried over from the previous generations of intercom and PA systems.
- Each DS-22 call station is equipped with a voice memory.
- IP-based Ethernet BUS system.
- Low cabling effort due to backplanes for the module slots.
- Easy scaling of the system due to the modular system design.
- High flexibility due to the wide range of applications.
- Analogue technology for outdoor use enables the use of existing analogue terminals.
- Control of digital call stations via U_{ko} / U_{po} interface.
- Internal connections are realised via patch cables.
- Fast transmission of voice communication through suitable protocol (latency <50ms).
- Good speech intelligibility (speech quality: bandwidth >22kHz).
- Simple assignment of temporary, freely selectable connection targets (outdoor stations).
- Actuators and sensors are managed in one system via IoT and MQTT.
- Simple operation of the configuration via the web interface.

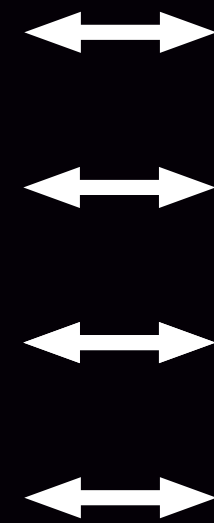
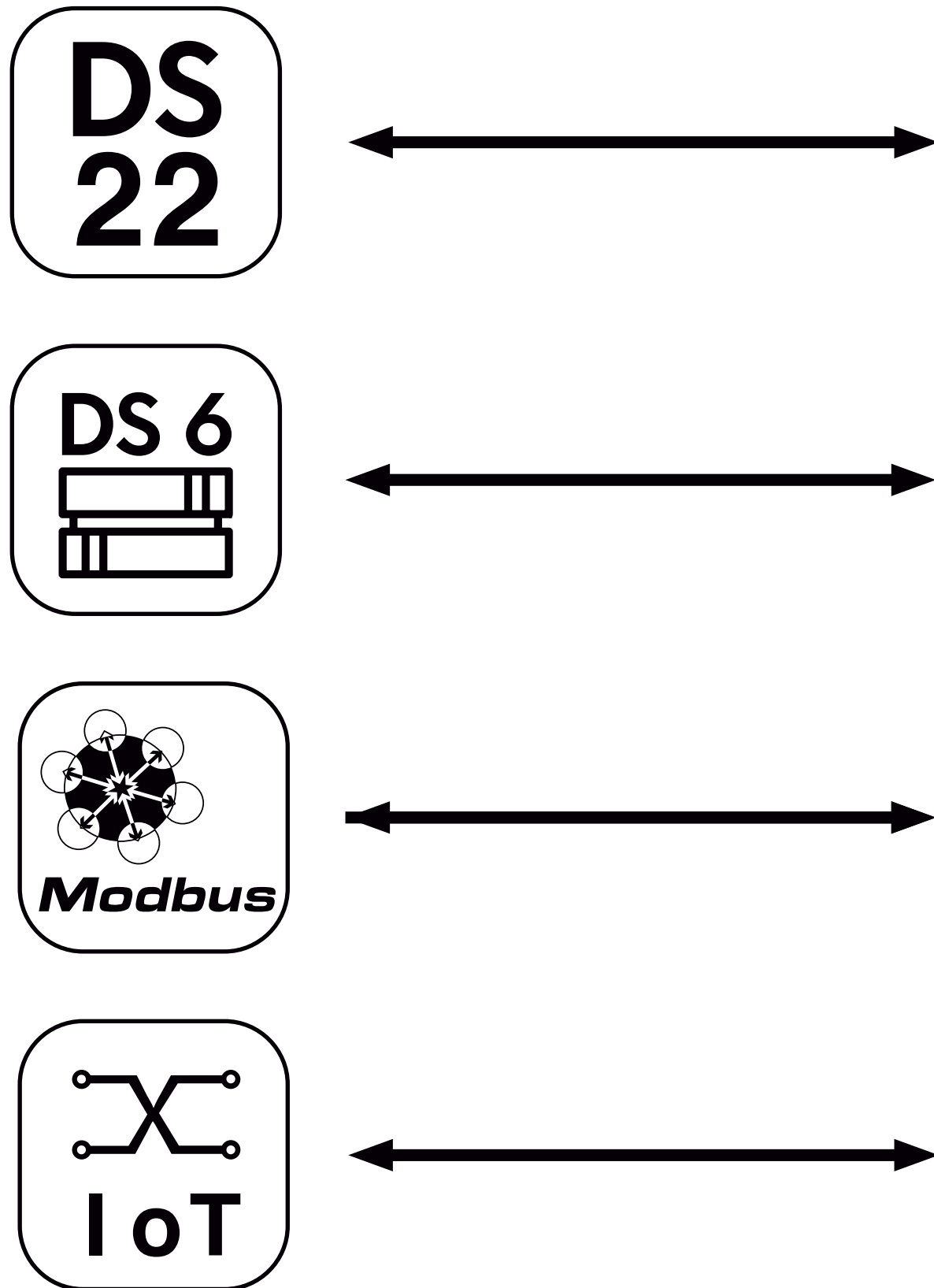
System design Intercom / PAGA

The individual components of a DS-22 system are interconnected via an Ethernet network (LAN).

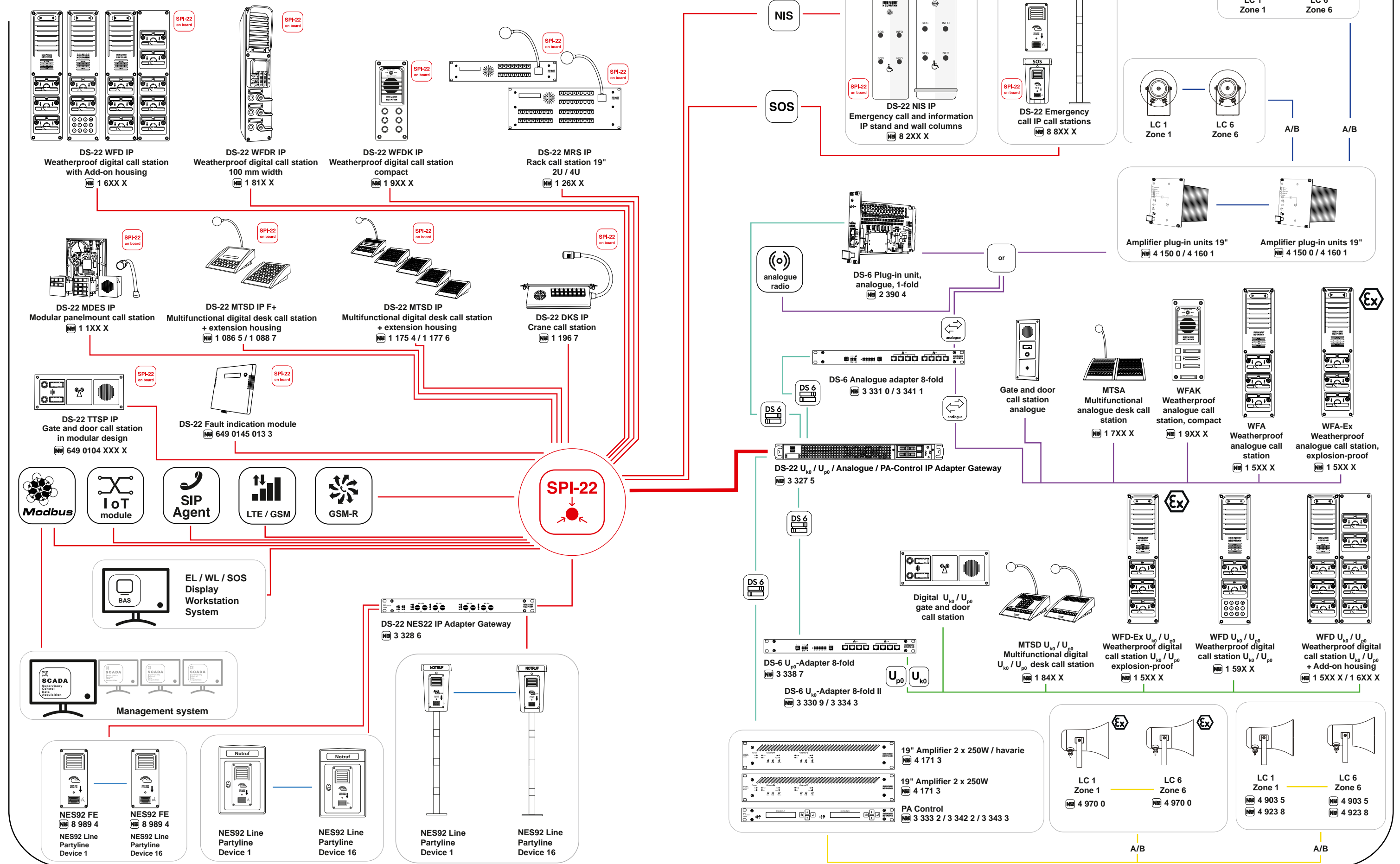
The DS-22 system consists on the one hand of one or more control and monitoring stations (digital indoor and outdoor stations) for operating and monitoring the system, and on the other hand of external devices and also legacy systems that are to be connected to the system.

Weatherproof (explosion-proof) call stations, amplifiers and other devices can be connected to the system via the DS-22 gateway interface slots. Actuators and sensors are connected either directly to the call stations or via IoT modules.





**Scheme
Functions
Adapters
Call stations**



Basic functions and operation DS-22

- Intercom (WL) / single call
- Optional full duplex / half duplex / simplex
- Unidirectional intercom
- Unidirectional loudspeaker connections (EL)
- Collective and group call
- Freely selectable group call (touchable group call)
- Programming of temporary destinations
- Alarm and warning call
- System monitoring
- Night setback / silent mode
- Voice memory for announcements and sound signals
- Output of audio files Setting the time at the control and monitoring station
- Volume setting at the control and monitoring station
- Call priorities
- Free programming of key functions
- Call memory
- Control of a 30W/100V auxiliary amplifier
- Party line function (conference call)
- Switchable alarm to dynamic group
- Free dialling via numeric keypad
- DR-Intercom

Individual calls

- **Simple single call (WL)**
Pressing a line key establishes a connection to another call station. The call is ended by releasing the button.
- **Individual call with pre-chime**
By pressing a line key with configured pre-chime, a connection to another call station is established and the pre-chime is played. Subsequently, an announcement can be made to the call destination. The call is ended by releasing the button.
- **Individual call with configured voicebox message**
Pressing a line key with a configured voicebox message establishes a connection to another call station and plays back the configured voicebox message there. The call is terminated according to the voicebox configuration (alternatives: Call termination after one playback of the voicebox, after n-fold repetition or endless repetition until certain keys are pressed).
- **Individual conversation with free intercom connection / half duplex.**
After pressing a line key with „free intercom“ configured, an intercom conversation can be made with the target call station whose speech direction is controlled by the first call station (e.g. communication to a gate intercom). The conversation is ended by pressing a delete key.
- **Individual conversation with handsfree / full duplex.**
After pressing a line key with „Handsfree Duplex“ configured, a call can be made to the destination station via the intercom. The call is ended by pressing a delete key, optionally a timer can force the disconnection or deletion of the call by releasing/pressing the PTT key.
- **Single call (PTT) / full duplex**
Pressing a line key establishes a connection to another call station. The call is ended by releasing the button.

Group calls

- **Simple group call**
After activating a group call key, a call is set up to a predefined group of call destinations. It is ended by releasing the button.
- **Group call with pre-chime**
After activating a group call button with predefined pre-chime, a call is established to a predefined group of call destinations and the configured pre-chime is played. Subsequently, an announcement can be made to the target call group. The group call is ended by releasing the button.
- **Group call with configured voicebox message**
After pressing a group call key with configured voicebox message, a connection to a predefined group of call destinations is established and the voicebox message is played. The call is ended according to the voicebox configuration (see above).
- **Dynamic group call**
After activating a group selection key (key flashes at high speed), the line keys of the desired call destinations are activated. Then the connection is established by pressing the autostart key and the announcement can be made. The call is ended by pressing a delete key.

Group calls

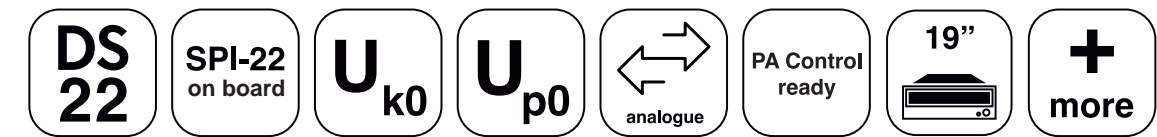
- **Simple collective call**
After pressing a collective call key, a connection to all destinations is established. It is terminated by releasing the button.
- **Collective call with pre-chime**
After pressing a collective call button with configured pre-chime, a connection to all destinations is established and the corresponding pre-chime is played. Subsequently, an announcement can be made to all call destinations. The collective call is ended by releasing the button.
- **Collective call with voicebox message**
After pressing a collective call button with configured voicebox message, a call is established to all destinations and the voicebox message is played. The call is ended according to the voicebox configuration (see above).

Alarm functions

- **Alarm activation**
Alarms can be activated by the corresponding button in a call station or by an input from an IoT module.
- **Deletion of alarms**
A cancellation button is provided for each alarm button, allowing the corresponding alarm to be cancelled. An alarm can also be cleared using an IoT module.
- **PA warning announcements**
After pressing an CCW button (CCW: collective call warning), current announcements can be made regarding an activated alarm. The playback of the alarm tone is interrupted by pressing the CCW button. After releasing the CCW button, the alarm tone is played again.

DS-22 Adapter Gateways

DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway



The DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway is used exclusively in DS-22 systems. It can be connected directly to a DS-22 network node, i.e. a switch.

The DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway is intended for indoor use.

For communication with analogue call stations and digital U_{k0} and U_{p0} call stations from existing networks, the DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway in 19" design is available as a connecting link to the 1-fold or 8-fold analogue adapters and 8-fold U_{k0} or U_{p0} adapters, also in 19" design.

Both the DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway and the adapters can be mounted in the network node and enable ranges to the call stations of up to 6km.

Loudspeaker circuits connected to a PA Control can also be reached and controlled via the DS-22 U_{k0} / U_{p0} / Analogue / PA Control IP Adapter Gateway. All control and monitoring functions of the PA Control are retained and can be communicated to the DS-22 network.

The DS-22 IP fault indication module for rail mounting is available for collecting and forwarding fault indication functions.

DS-22 Adapter Gateways

DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway

- **Connection to the U_{k0} adapters**
A connection to the U_{k0} outdoor and indoor stations, as well as to the explosion-protected and approved EX-U_{k0} outdoor stations, is established via the U_{k0} adapters.
- **Connection to the U_{p0} adapters**
A connection to the U_{p0} outdoor and indoor stations is established via the U_{p0} adapters.
- **Connection to the analogue adapters**
A connection to the analogue outdoor and indoor stations, as well as to the explosion-protected and approved EX analogue outdoor stations, is established via the analogue adapters.
- **Connection to the PA Controls**
A connection to the connected loudspeaker circuits is established via the PA Controls with their downstream Class-D amplifiers. All monitoring functions are active and faults are reported to the DS-22 network.
- **Fault management via IoT MQTT interface**
Fault management in the DS-22 system is carried out via IoT MQTT interface to any MQTT broker, for example the MQTT broker of the DS-22 IP fault indication module.

DS-22 Adapter Gateways

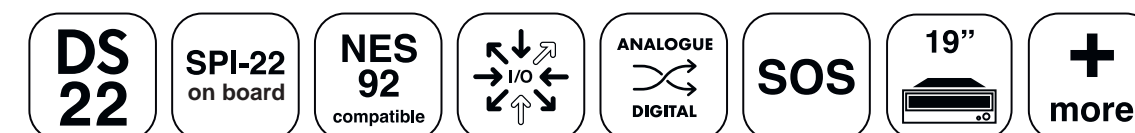
DS-22 U_{k0} / U_{p0} / Analogue / PA-Control IP Adapter Gateway

Art. no.	3 327 5
Mechanical data	
Weight	Approx. 6.3kg
Housing dimensions (HxWxD)	Width: 19", Height: 1U according to DIN EN 60297 Installation depth (housing without connector): 385mm
Enclosure dimensions Rack mounting	19" / 1U
Electrical data	
Operating voltage range	230V AC (-10% / +15%)
Nominal power consumption	350W
Connectivity	
LAN-Interfaces	4
Transmission protocol	Neumann DS-22 IP / SIP / DS-6 Protocol
IP hardware interface	LAN: 100-BASE-T Autonegotiation Ethernet according to IEEE 802.3u (100Mbit/s)
Device data	
Processor	Intel i3
Main memory	≥ 8GB
Hard disk	≥ 240GB SSD
Software	
Operating system	UBUNTU
Installed software packages	Linux Kernel, Software DS-22 U _{k0} / U _{p0} / Analogue / PA-Control IP Adapter Gateway
Environmental conditions	
Temperature range	5°C to +40°C
Protection class according to DIN EN 60529, or IEC 60529	IP20



DS-22 Adapter Gateways

DS-22 NES92 IP Adapter-Gateway



Release 2023 /-24

The NES22 SIP adapter gateway is used to couple up to four 6-wire NES92 emergency line cables to the Neumann SIP-based emergency call workstation (TIMM).

It contains amplifiers for the trans with, receive and data RF voltages, generates and receives the voltages for automatic testing, and provides for the feeding and monitoring of the operating DC current of the connected emergency call units and, if necessary, of an NLT line amplifier.

With its 10/100 Mbit Ethernet connection, the adapter can be used in practically all IP-based networks and compatibly replaces the previous solution with an MDK central unit and corresponding plug-in units.

NF transmission / reception to and from an emergency call unit:

For AF transmission to and from the emergency call unit, one pair of wires is used each and fed transformer-symmetrically to the emergency call units.

Data traffic with the emergency call units:

FSK (Frequency Shift Keying) data telegrams are used for data traffic with the emergency call units, which are normally transferred to the emergency call units one after the other in both directions via a separate wire pair.

DC power supply / phantom power supply:

For the power supply of the connected emergency call units, the four LF emergency call line cables additionally receive a symmetrically fed direct current. For control and protection of this direct current, the plug-in unit contains a corresponding supply circuit. The existing output voltage is indicated by the green „Line“ LED. In case of fuse failure or overload, this indication goes out. At the same time, a corresponding fault message is initiated.

Monitoring functions:

The emergency call units of the NES92 emergency call system can be monitored electrically and acoustically by the emergency call centre. For this purpose, the NES22 SIP Adapter Gateway sends a test tone to the loudspeaker of the emergency call unit to be tested and checks the correct transmission by means of the emergency call unit microphone.

For further possible applications, please contact your sales representative.

DS-22 Adapter Gateways

DS-22 NES92 IP Adapter-Gateway

- IP adapter for NES92 SOS call stations in 6-wire technology
- Up to 4 channels / SOS lines in one unit
- Up to 16 Neumann NES92 SOS columns / hands-free units can be operated in parallel
- Line lengths up to 20km possible (6-wire technology)
- DC power supply for terminal units (optionally local)
- Remotely controllable monitoring of microphone and loudspeaker
- Remote control of NES92 relay K1
- Fuse monitoring
- Software PLC
- Watchdog
- LED status indicators of unit status and SOS lines
- Redundancy: Two Power OFF Loop sockets for looping through the NES line to another unit
- Fault signalling concept IoT MQTT interface for connection to Scada and management systems
- Fault signalling contact
- Easy-to-use web interface for unit configuration
- 19“ rack housing / 1U



DS-22 Adapter Gateways

DS-22 NES92 IP Adapter-Gateway

Art. no.	3 328 6
Mechanical data	
Weight	Approx. 3.8kg
Housing dimensions (HxWxD)	43mm x 483mm x 284mm
Enclosure dimensions Rack mounting	19“ / 1U
Electrical data	
Operating voltage range	DC 48V (optional DC 60V)
Power consumption	Max. 50W
Connectivity	
Ethernet interfaces	1 (IEEE 802.3u)
Service interfaces	1
Transmission protocol	NES92: Neumann-FSK-SOS-Protocol IP: SIP
IP hardware interface	LAN: 100-BASE-T Autonegotiation Ethernet according to IEEE 802.3u (100Mbit/s)
Serial interfaces	RS232 (D-Sub-9 connector) / RS422/485 (2/4-wire)
I/O Interfaces:	1 relay (change-over switch, AC 240V, 5 A) 4 NF inputs aS / bS: -10dBm (RE = 600 Ω) 4 NF FSK inputs a-FSK / b-FSK: -6dBm (RE = 600 Ω) 4 AF outputs aE / bE: -10dBm (RE = 600 Ω)
Environmental conditions	
Temperature range	0°C to +40°C
Protection class according to DIN EN 60529, or IEC 60529	IP20

Accessories		
8 989 4	NES92 FE	SOS Hands-free insert orange
8 890 6	NES92 FE	SOS Hands-free insert red
8 991 7	NES92 FE	SOS Hands-free insert VIENNA





DS-22 Call stations

DS-22 MTSD IP

Multifunctional desk call station



The DS-22 MTSD IP multifunctional desk call station is used in the DS-22 decentralised communication system. It enables direct speech connections with other call stations, loudspeaker announcements and telephone operation.

The DS-22 MTSD IP Multifunctional Desk Call Station is intended for indoor use. Due to its versatility and great expandability, it finds its application in many areas of heavy industry and railway engineering by programming many special functions.

At the same time, the DS-22 MTSD IP multifunctional desk call station also offers programmable local functions. In addition to the destination keys for WL/EL, the DS-22 MTSD IP multifunctional desk call station has monitoring of the gooseneck electret microphone with electronic noise compensation and dynamic compression, volume control, an integrated voice memory for playback of customised announcement texts, tone sequences or audio files, which can be played back at the touch of a button, as well as a built-in display for status and fault indications and display options for these in plain text.

The DS-22 MTSD IP multifunctional desk call station has 16 line keys. By means of suitable supplementary housings with 48 additional line keys each, an extension up to a total of 256 line keys is possible.

The DS-22 MTSD IP multifunctional desk call station is powered via Power over Ethernet as standard. Optionally, however, a DC 48V mains node power supply or local power supply is also possible. For this purpose, the manufacturer supplies various DIN rail power supply units for mounting in the network node, as well as plug-in and desktop power supply units for local power supply.

DS-22 Call stations

DS-22 MTSD IP Multifunctional desk call station

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signalling, by means of LEDs
- Cyclical acoustic self-test for loudspeaker and microphone monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Shock- and break-proof ABS plastic housing
- Dynamic 8Ω built-in loudspeaker
- Flexible gooseneck electret microphone 300mm length
- Basic microphone unit with 16 push-button line keys
- Expandable by up to 5 Add-on housings with 48 freely labelled line keys each - max. 256 keys
- Add-on housing with 48 buttons
- Optionally expandable with headset, foot switch or microphone
- Optional connection for monitoring or announcement loudspeaker
- Additional display of status messages and fault messages in the two-line illuminated display
- Dial keypad can be integrated in the Add-on housing by software via line keys
- Adjustment of loudspeaker volume via configured keys with key functions louder and softer
- Optional potential-free relay contact for connection of a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node supply or local supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Optional setting of loudspeaker volume via configured keys with key functions louder and quieter for the second 7W amplifier
- Optional key cover to protect against unintentional triggering
- Optional retrofittable coloured keys



DS-22 Call stations

DS-22 MTSD IP Multifunctional desk call station

Technical data		
Art. no.	1 175 4	1 177 6
Mechanical data		
Weight	Approx. 1.1kg	Approx. 0.8kg
Housing dimensions (HxWxD)	88mm x 183mm x 260mm	88mm x 183mm x 235mm
Housing colour	Pearl white (RAL 1013) top side / graphite black (RAL 9011) bottom side	
Material	Shock and break-proof ABS plastic housing	
Number of talk keys	16	48 per Add-on housing 48-96-144-192-240 depending on number of enclosures
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Maximum power consumption (including all expansion stages)	90W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at during operation with a maximum of 2 Add-on housing	
PoE (including all expansion stages)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt for operation with more than 2 Add-on housing to full extension	
Mains node supply (without expansion stages)	For locations without PoE call station supply, optional DC 48V mains node supply via 60W trunking power supply unit	
Mains node supply (including all expansion stages)	For locations without PoE call station supply, optional DC 48V mains node supply via 150W rail power supply unit	
Local supply (without expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 60W plug-in or desktop power supply unit	
Local supply (including all expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 120W table power supply unit	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	0°C to +50°C	
Protection class according to DIN 60529, resp. IEC 60529	IP20	



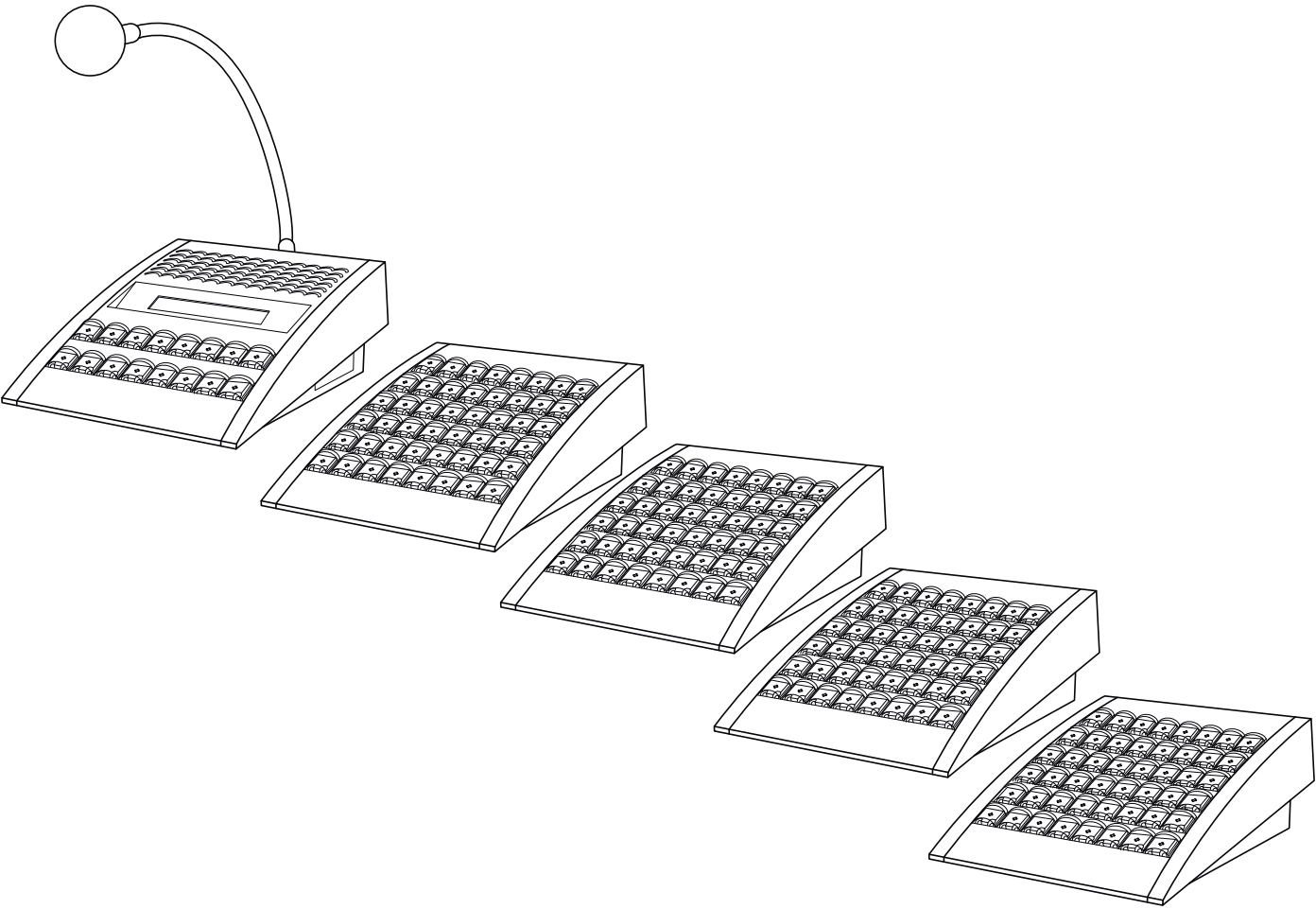
DS-22 Call stations

DS-22 MTSD IP
Multifunctional desk call station

Accessories	
229 8001 175 5	Plug-in power supply AC 230V / DC 48V 60W for the european market
229 8101 175 6	Table power supply AC 230V / DC 48V 60W for international applications, equipped with an IEC320-C14 plug, for adaptation of country-specific connection cables
229 8201 175 7	Table power supply AC 230V / DC 48V 120W for international applications, equipped with an IEC320-C14 plug, for adapting country-specific connection cables
999 1980 002 7	Connection cable for table power supply. IEC320 connection cable with socket C14 for the european market
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 150W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE injector according to IEEE802.3bt (90W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP ports for fibre optic modules for 19“ mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
229 0601 850 3	Keys cover with fixing screws (5 pieces)
229 0701 850 4	Mounting kit for key cover, including drilling template, drill and mounting instructions
213 1831 155 0	Key cap, ABS plastic, colour: sky blue (RAL 5015)
213 1831 156 1	Key cap, ABS plastic, colour: rape yellow (RAL 1021)
213 1831 157 2	Key cap, ABS plastic, colour: fire red (RAL 3000)
213 1831 158 3	Key cap, ABS plastic, colour: yellow-green (RAL 6018)
213 1831 159 4	Key cap, ABS plastic, colour: turquoise blue (RAL 5018)
213 1831 160 6	Key cap, ABS plastic, colour: signal black (RAL 9004)
212 1831 121 2	Plexi cover for key cap, PC plastic, colour: crystal clear
214 1516 014 5	Labelling sheet DIN A4 for MTSD
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for auxiliary devices monitoring loudspeaker, relay contact with auxiliary component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel, and connection cable
641 0116 033 5	Active monitoring loudspeaker with integrated 25W amplifier for wall, table or ceiling mounting.
641 0116 034 6	Monitoring loudspeaker 7W for wall, table or ceiling mounting
629 1116 033 2	Swivel/tilt bracket with fixing material for wall or ceiling mounting of monitoring loudspeakers
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
223 6101 177 0	Flat ribbon cable for connecting the first Add-on housing
223 6201 177 1	Flat ribbon cable for connecting the second Add-on housing
223 6301 177 2	Flat ribbon cable for connecting the third add-on housing
223 6401 177 3	Flat ribbon cable for connecting the fourth Add-on housing
223 6501 177 4	Flat ribbon cable for connecting the fifth add-on housing
999 1980 278 2	CAT.6 S/FTP patch cable, halogen-free, 5m
229 0501 045 8	Wall bracket for DS-22 MTSD IP without Add-on housing
3 300 6	Desk mounting frame for DS-22 MTSD IP without Add-on housing
3 301 7	Desk mounting frame for DS-22 MTSD IP with one add-on housing
919 1250 011 9	Replacement battery

DS-22 Call stations

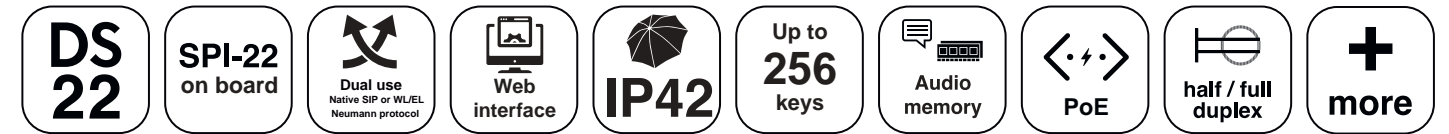
DS-22 MTSD IP
Multifunctional desk call station



DS-22 Call stations

DS-22 MTSD IP F+

Multifunctional desk call station with membrane keypad



The DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad is used in the DS-22 decentralised communication system. It enables direct voice connections with other call stations, loudspeaker announcements and telephone operation.

The DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad is intended for indoor use. Due to its versatility and great expandability, it is used in many areas of heavy industry and railway engineering by programming many special functions.

The DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad is very easy to clean due to its design, which is closed from above by a membrane keypad, and for this reason it is also excellently suited for use in dusty and damp environments.

At the same time, the DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad also offers programmable local functions.

In addition to the direct dialling keys for WL/EL, the DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad features monitoring of the gooseneck electret microphone with electronic noise compensation and dynamic compression, volume control, an integrated voice memory for playback of customised announcement texts, tone sequences or audio files, which can be played back at the touch of a button, as well as a built-in display for status and fault indications and display options for these in plain text.

The DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad has 16 line keys. By means of suitable supplementary housings with 48 additional line keys each, an extension up to a total of 256 line keys is possible.

The DS-22 MTSD IP F+ multifunctional desk call station with membrane keypad is powered via Power over Ethernet as standard. Optionally, however, a DC 48V mains node supply or local supply is also possible.

For this purpose, the manufacturer supplies various DIN rail power supply units for mounting in the network node, as well as plug-in and desktop power supply units for local power supply.

DS-22 Call stations

DS-22 MTSD IP F+ Multifunctional desk call station with membrane keypad

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signalling, by means of LEDs
- Cyclical acoustic self-test for loudspeaker and microphone monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Shock- and break-proof ABS plastic housing
- Dynamic 8Ω built-in loudspeaker
- Flexible gooseneck electret microphone 300mm length
- Basic microphone unit with 16 push-button line keys
- Expandable by up to five Add-on housings with forty-eight freely labeled line keys each
- Add-on housing with 48 buttons
- Optionally expandable with headset, foot switch or microphone
- Optional connection for monitoring or announcement loudspeaker
- Additional display of status and fault messages in two-line illuminated display
- Dial keypad can be integrated in the Add-on housing by software via line keys
- Adjustment of loudspeaker volume via configured keys with key functions louder and softer
- Optional potential-free relay contact for connection of a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node supply or local supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Optional setting of loudspeaker volume via configured keys with key functions louder and quieter for the second 7W amplifier



DS-22 Call stations

DS-22 MTSD IP F+ Multifunctional desk call station with membrane keypad

Technical data		
Art. no.	1 086 5	1 088 7
Mechanical data		
Weight	Approx. 1.1kg	Approx. 0.8kg
Housing dimensions (HxWxD)	88mm x 183mm x 260mm	88mm x 183mm x 235mm
Housing colour	Pearl white (RAL 1013) top side / graphite black (RAL 9011) bottom side	
Material	Shock and break-proof ABS plastic housing	
Number of talk keys	16	48 per Add-on housing 48-96-144-192-240 depending on number of Add-on housing
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Maximum power consumption (including all expansion stages)	90W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at during operation with a maximum of 2 Add-on housing	
PoE (including all expansion stages)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt for operation with more than 2 Add-on housing to full extension	
Mains node supply (without expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit	
Mains node supply (including all expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node supply via 150W mounting rail power supply unit	
Local supply (without expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V via 60W plug-in or desktop power supply unit	
Local supply (including all expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 120W table power supply unit	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	0°C to +50°C	
Protection class according to DIN 60529, resp. IEC 60529	IP42	



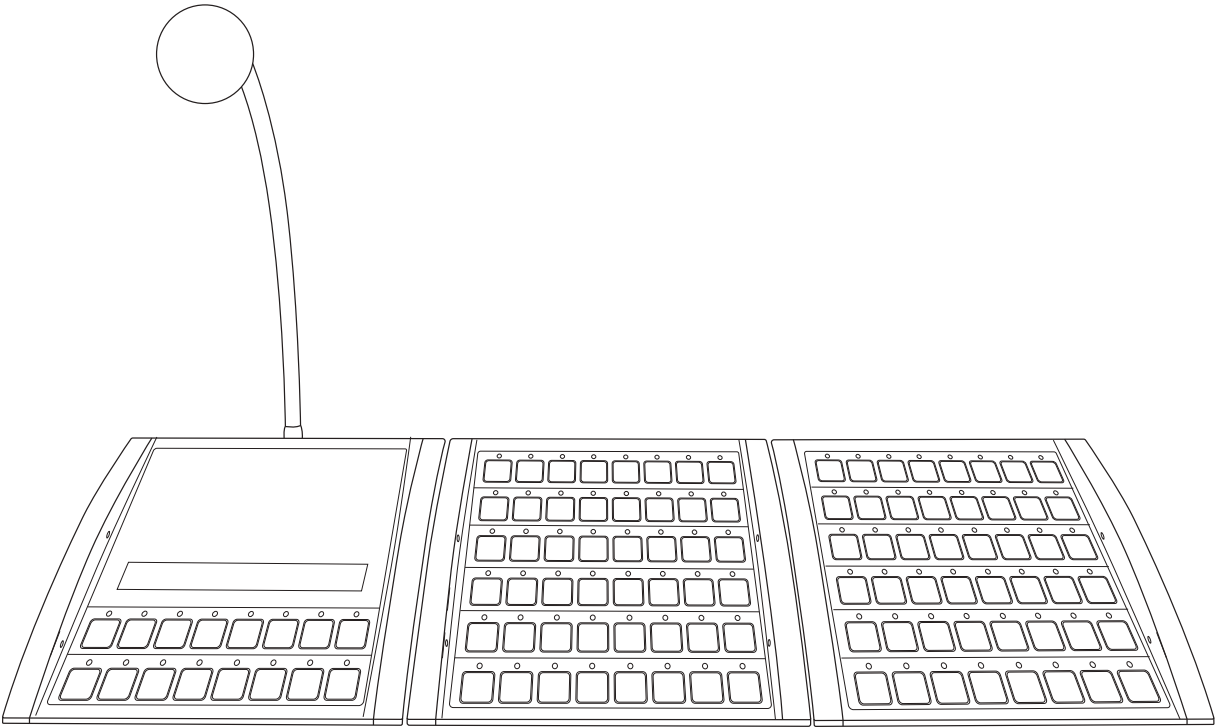
DS-22 Call stations

DS-22 MTSD IP F+
Multifunctional desk call station with membrane keypad

Accessories	
229 8001 175 5	Plug-in power supply AC 230V / DC 48V 60W for the european market
229 8101 175 6	Table power supply AC 230V / DC 48V 60W for international applications, equipped with an IEC320-C14 plug, for adaptation of country-specific connection cables
229 8201 175 7	Table power supply AC 230V / DC 48V 120W for international applications, equipped with an IEC320-C14 plug, for adapting country-specific connection cables
999 1980 002 7	Connection cable for table power supply. IEC320 connection cable with socket C14 for the european market
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 150W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE injector according to IEEE802.3bt (90W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP ports for fibre optic modules for 19“ mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
214 1516 024 6	Labelling sheet DIN A4 for MTSD F+
229 9901 085 5	Software for key strip labelling PC with laser printer
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for additional devices monitoring loudspeaker, relay contact with additional component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel, and connection cable
641 0116 033 5	Active monitoring loudspeaker with integrated 25W amplifier for wall, table or ceiling mounting.
641 0116 034 6	Monitoring loudspeaker 7W for wall, table or ceiling mounting
629 1116 033 2	Swivel/tilt bracket with fixing material for wall or ceiling mounting of monitoring loudspeakers
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
223 6101 177 0	Flat ribbon cable for connecting the first Add-on housing
223 6201 177 1	Flat ribbon cable for connecting the second Add-on housing
223 6301 177 2	Flat ribbon cable for connecting the third add-on housing
223 6401 177 3	Flat ribbon cable for connecting the fourth Add-on housing
223 6501 177 4	Flat ribbon cable for connecting the fifth add-on housing
999 1980 278 2	CAT.6 S/FTP patch cable, halogen-free, 5m
229 0501 045 8	Wall bracket for DS-22 MTSD IP without Add-on housing
3 300 6	Desk mounting frame for DS-22 MTSD IP without Add-on housing
3 301 7	Desk mounting frame for DS-22 MTSD IP with one add-on housing
919 1250 011 9	Replacement battery

DS-22 Call stations

DS-22 MTSD IP F+
Multifunctional desk call station with membrane keypad





DS-22 Call stations

DS-22 MRS IP

Multifunctional rack-mount call station 19 inch



The DS-22 MRS IP Multifunctional rack-mount call station 19 inch is used in the DS-22 decentralised communication system. It enables direct voice connections with other call stations, loudspeaker announcements and telephone operation.

The DS-22 MRS IP Multifunctional rack-mount call station 19 inch is designed for indoor use. Due to its versatility and great expandability, it finds its application in many areas of heavy industry and railway engineering by programming many special functions.

Due to the 19“ mounting in racks or cabinets, the DS-22 MRS IP Multifunctional rack-mount call station 19 inch is excellently suited for use in equipment rooms, network nodes, control centres or also signal boxes.

At the same time, the DS-22 MRS IP Multifunctional rack-mount call station 19 inch also offers programmable local functions.

In addition to the destination keys for WL/EL, the DS-22 MRS IP Multifunctional rack-mount call station 19 inch has a monitoring of the gooseneck electret microphone with electronic noise compensation and dynamic compression, a volume control, an integrated voice memory for the playback of customised announcement texts, tone sequences or audio files, which can be played back at the touch of a button, as well as a built-in display for status and fault indications and display options of these in plain text.

The DS-22 MRS IP Multifunctional rack-mount call station 19 inch has, depending on the variant, 16 or 48 line keys.

By default, the DS-22 MRS IP Multifunctional rack-mount call station 19 inch is powered via Power over Ethernet. Optionally, however, a DC 48V mains node supply or local supply is also possible. For this purpose, the manufacturer supplies various DIN rail power supply units for mounting in the network node, as well as plug-in and desktop power supply units for local power supply.

DS-22 Call stations

DS-22 MRS IP Multifunctional rack-mount call station 19 inch

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signalling, by means of LEDs
- Cyclical acoustic self-test for loudspeaker and microphone monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Shock- and break-proof aluminium housing
- Dynamic 8Ω built-in loudspeaker
- Flexible gooseneck electret microphone 300mm in length
- With 16 buttons and 2U construction, or with 48 buttons and 4U construction
- Optional expandability with listening/talking set, foot switch or microphone
- Optional connection for monitoring or announcement loudspeaker
- Additional indication of status messages and fault messages in the two-line illuminated display
- Adjustment of loudspeaker volume via configured keys with key functions louder and softer
- Optional potential-free relay contact for connecting a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node supply or local supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Rack mounting



DS-22 Call stations

DS-22 MRS IP Multifunctional rack-mount call station 19 inch

Technical data		
Art. no.	1 268 7	1 269 8
Mechanical data		
Weight	Approx. 5.3kg	Approx. 2.0kg
Housing dimensions (HxWxD)	Width 19“, height 4U Installation depth 220mm (without connector and terminals)	Width 19“, height 2U installation depth 220mm (without connector and terminals)
Housing colour	Front panel aluminium grey	
Material	Aluminium	
Number of talk keys	48	16
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE	PoE phantom call station power supply via the Ethernet interface, two-pair with PoE Class 4 according to IEEE 802at or higher	
Mains node supply	For locations without PoE power supply to the call station, optional DC 48V mains node power supply via 60W channel power supply unit	
Local feeding	For locations without PoE call station power supply, optional local power supply DC 48V via 60W plug-in or desktop power supply unit	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	0°C to +50°C	
Protection class according to DIN 60529, resp. IEC 60529	IP20	



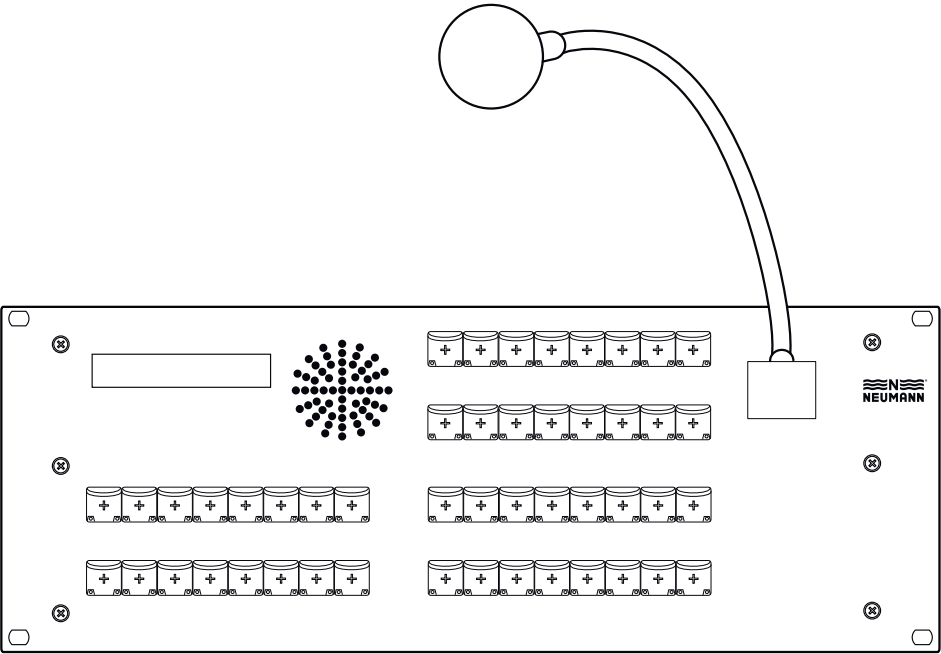
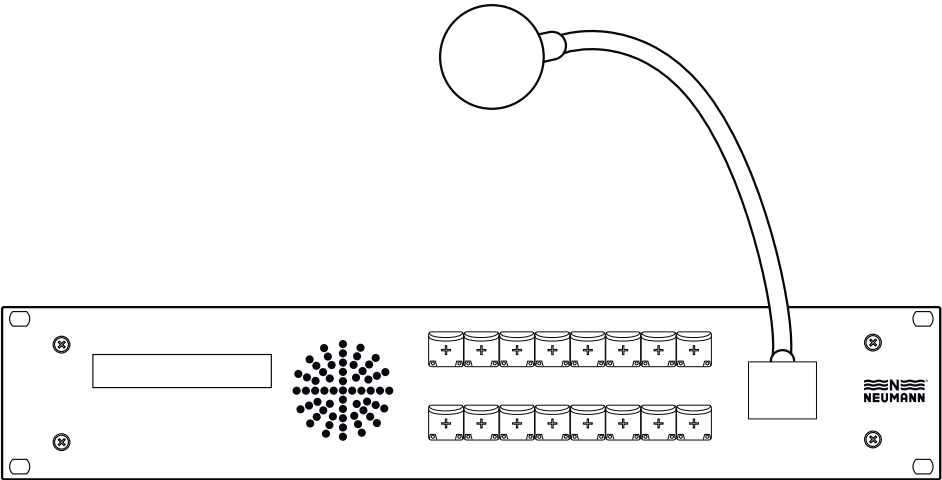
DS-22 Call stations

DS-22 MRS IP Multifunctional rack-mount call station 19 inch

Accessories	
229 8001 175 5	Plug-in power supply AC 230V / DC 48V 60W for the european market
229 8101 175 6	Table power supply AC 230V / DC 48V 60W for international applications, equipped with an IEC320-C14 plug, for adaptation of country-specific connection cables
999 1980 002 7	Connection cable for table power supply. IEC320 connection cable with socket C14 for the european market
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
919 1116 097 4	PoE Injector according to IEEE802.3at (30W) for mounting rail installation in the mains node(Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP portsfor fibre-optic modules for 19“ mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre-optic multimode
229 0601 850 3	Keys cover with fixing screws (5 pieces)
229 0701 850 4	Mounting kit for key cover, including drilling template, drill and mounting instructions
213 1831 155 0	Key cap, ABS plastic, colour: sky blue (RAL 5015)
213 1831 156 1	Key cap, ABS plastic, colour: rape yellow (RAL 1021)
213 1831 157 2	Key cap, ABS plastic, colour: fire red (RAL 3000)
213 1831 158 3	Key cap, ABS plastic, colour: yellow-green (RAL 6018)
213 1831 159 4	Key cap, ABS plastic, colour: turquoise blue (RAL 5018)
213 1831 160 6	Key cap, ABS plastic, colour: signal black (RAL 9004)
212 1831 121 2	Plexi cover for key cap, PC plastic, colour: crystal clear
214 1516 014 5	Labelling sheet DIN A4 for MTSD
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for auxiliary devices monitoring loudspeaker, relay contact with auxiliary component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel and connection cable
641 0116 033 5	Active monitoring loudspeaker with integrated 25W amplifier for wall, table or ceiling mounting.
641 0116 034 6	Monitoring loudspeaker 7W for wall, table or ceiling mounting
629 1116 033 2	Swivel/tilt bracket with fixing material for wall or ceiling mounting of monitoring loudspeakers
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
919 1250 011 9	Replacement battery

DS-22 Call stations

DS-22 MRS IP Multifunctional rack-mount call station 19 inch

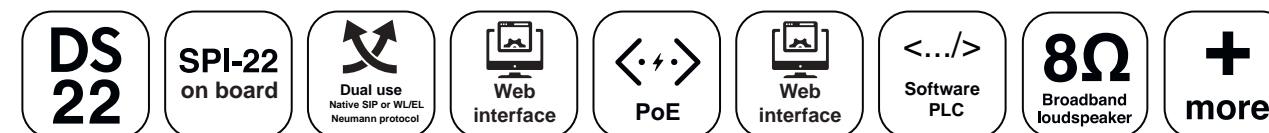




DS-22 Call stations

DS-22 MDES IP

Multifunctional panel-mount call station



The DS-22 MDES IP multifunctional panel-mount call station is used in the DS-22 decentralised communication system. It enables direct speech connections with other call stations, loudspeaker announcements and telephone operation. The DS-22 MDES IP Multifunctional Panel-mount Call Station is intended for indoor use. Due to its versatility and great expandability, it finds its application in many areas of heavy industry and railway engineering by programming many special functions.

The DS-22 MDES IP multifunctional panel-mount call station corresponds technically to the DS-22 MTSD IP multifunctional desk call station, but is broken down into individual modular assemblies. These include key plates, built-in loudspeaker, gooseneck microphone and a housing with the electronic and connection elements.

Switch plates and built-in loudspeakers are accommodated in standard housings of 96mm x 96mm. They fit into built-in openings complying with IEC 61554 and are thus ideally suited for the harmonious built-in of call stations in control panels, switchboards and control desks.

At the same time, the DS-22 MDES IP multifunctional panel-mount call station also offers programmable local functions.

In addition to the destination buttons for WL/EL, the DS-22 MDES IP multifunctional panel-mount call station features monitoring of the gooseneck electret microphone with electronic noise compensation and dynamic compression, volume control, an integrated voice memory for playback of customised announcement texts, tone sequences or audio files, which can be played back at the touch of a button.

The switch plates of the DS-22 MDES IP multifunctional panel-mount call station have 6 or 12 line keys, depending on the variant.

As standard, the DS-22 MDES IP multifunctional panel-mount call station is powered via Power over Ethernet. Optionally, however, a DC 48V mains node supply or local supply is also possible. For this purpose, the manufacturer supplies various mounting rail power supply units for installation in the network node, as well as plug-in and desktop power supply units for local power supply.

DS-22 Call stations

DS-22 MDES IP Multifunctional panel-mount call station

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Status messages, such as call and busy signals, are indicated by LEDs
- Cyclic acoustic self-test for loudspeaker and microphone monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Shock- and break-proof sheet steel housing
- Dynamic 8Ω built-in loudspeaker
- Flexible gooseneck electret microphone 420mm or 550mm in length
- Keypad with 6, resp. 12 line keys
- Expandable by up to 3 keypads with 6, resp. 12 keys each to up to 120 keys, resp. 240 keys
- Optional connection for monitoring or announcement loudspeaker
- Adjustment of loudspeaker volume via configured keys with key functions louder and softer
- Optional potential-free relay contact for connecting a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node supply or local supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Optional retrofittable coloured buttons



DS-22 Call stations

DS-22 MDES IP Multifunctional panel-mount call station

Technical data	
Art. no.	1 1xx x
Mechanical data	
Weight	Approx. 3.5kg
Housing dimensions (HxWxD)	Electronics housing: 110mm x 230mm x 300mm Modules 96mm x 96mm (installation opening according to IEC 61554) Gooseneck microphone length: 420mm / 550mm
Housing colour	Front panels textured lacquer (RAL 7032)
Material	Sheet steel
Number of talk keys	Key plate with 6 Keys: 6-12-18-24-36-48-54-60-66-72-78-84-90-96-102-108-114-120 (depending on number of enclosures) Key plates with 12 Keys: 12-24-36-48-60-72-84-96-108-120-132-144-156-168-180-192-204-216-228-240 (depending on number of enclosures)
Electrical data	
Nominal power consumption (without expansion stages)	20W
Maximum power consumption (including all expansion stages)	90W
Frequency range	100Hz to 22kHz (depending on the set codec)
Connectivity	
PoE (up to 48 Keys)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at
PoE (48 Keys up to full extension)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt
Mains node supply (up to 48 Keys)	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit
Mains node supply (48 Keys up to full extension)	For locations without PoE call station power supply, optional DC 48V mains node supply via 150W mounting rail power supply unit
Local feeding (up to 48 Keys)	For locations without PoE call station power supply, optional local power supply DC 48V via 60W plug-in or desktop power supply unit
Local feeding (48 Keys up to full extension)	For locations without PoE call station power supply, optional local power supply DC 48V via 120W plug-in or desktop power supply unit
Mains supply	
Ethernet interfaces	1 (IEEE 802.3u)
Service interfaces	1
Transmission protocol	Neumann DS-22 IP
Environmental conditions	
Temperature range	0°C to +50°C
Protection class according to DIN 60529, resp. IEC 60529	IP20

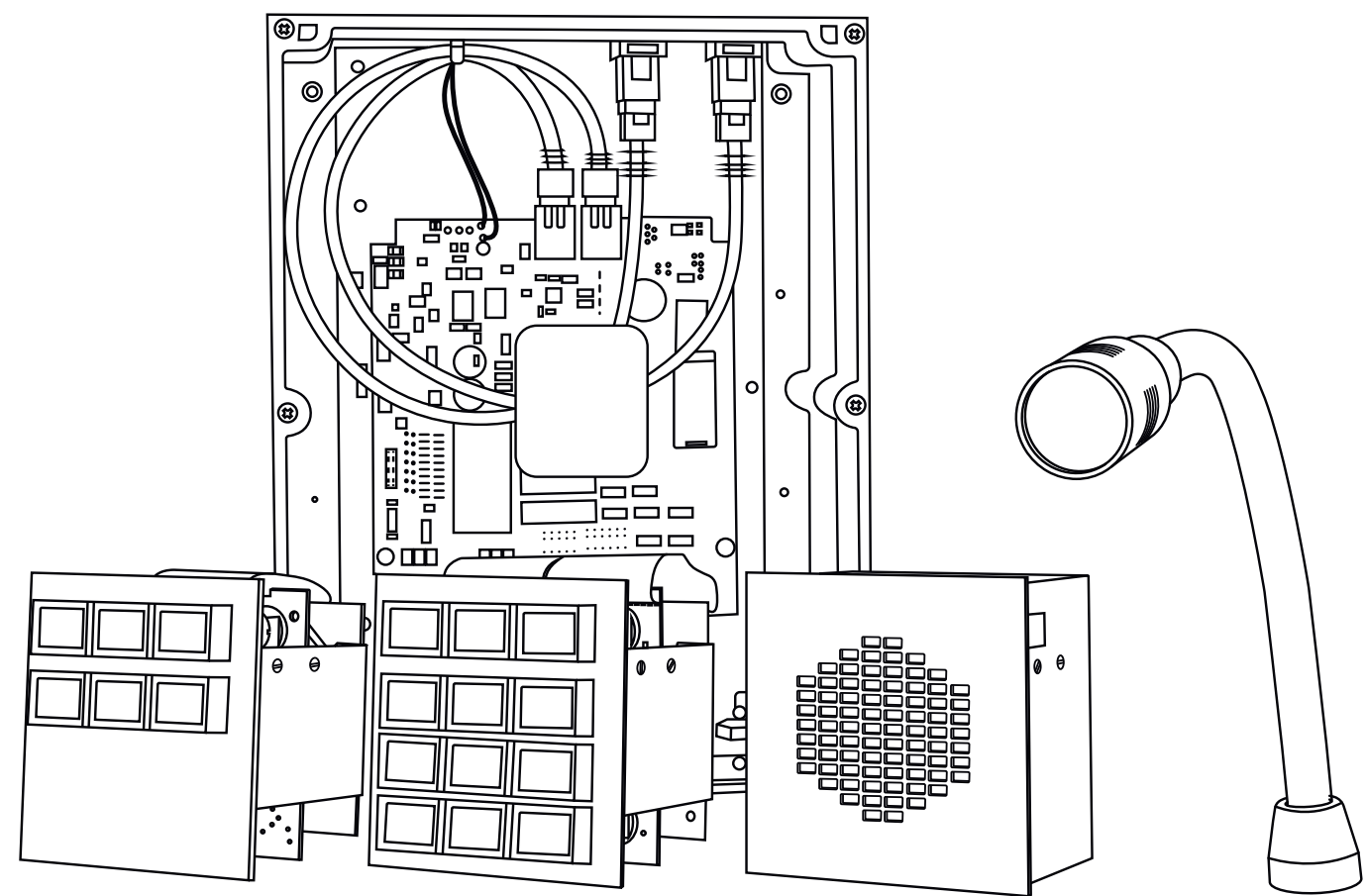


DS-22 Call stations

DS-22 MDES IP Multifunctional panel-mount call station

Module	
1 186 6	Button plate with 6 push-buttons
1 187 7	Button plate with 12 push-buttons
1 214 8	Built-in loudspeaker
1 288 9	Gooseneck microphone (approx. 420mm)
1 289 0	Gooseneck microphone (approx. 550mm)
1 185 5	Electronics and connection housing

Accessories	
229 8001 175 5	Plug-in power supply AC 230V / DC 48V 60W for the european market
229 8101 175 6	Table power supply AC 230V / DC 48V 60W for international applications, equipped with an IEC320-C14 plug, for adaptation of country-specific connection cables
229 8201 175 7	Table power supply AC 230V / DC 48V 120W for international applications, equipped with an IEC320-C14 plug, for adapting country-specific connection cables
999 1980 002 7	Connection cable for table power supply. IEC320 connection cable with socket C14 for the european market
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 150W for local power supply of DS-22 units
919 1116 097 4	PoE Injector according to IEEE802.3at (30W) for mounting rail installation in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE Injector according to IEEE802.3bt (90W) for mounting rail installation in the power supply node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP portsfor fibre-optic modules for 19" mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre-optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
919 1111 446 7	Illuminated white LED for use in illuminated push buttons
929 1216 015 6	Push-button cover clear for push buttons
929 1215 051 5	Bonnet puller for push buttons for push-button bonnet change
929 1216 022 4	Lamp puller for push buttons for changing the luminous diodes
929 1216 016 7	Green push-button cover for illuminated push buttons
929 1216 017 8	Push-button cover red for push buttons
929 1216 018 9	Yellow push-button cover for push buttons
929 1216 014 5	Protective cap clear for push buttons
919 1250 011 9	Replacement battery



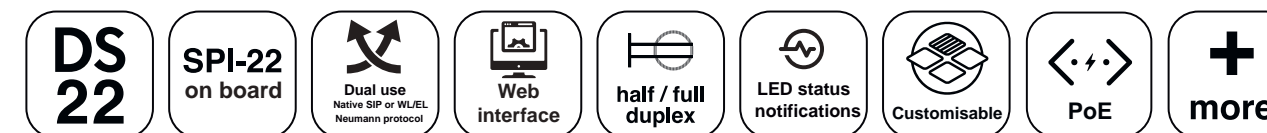


The illustrated photos are for reference only, the actual product may differ.

DS-22 Call stations

DS-22 TTSD IP

Gate and door call station



The DS-22 TTSD IP gate and door call station is used in the DS-22 decentralised communication system.

It enables direct voice connections with other call stations, loudspeaker announcements and telephone operation. The DS-22 TTSD IP gate and door call station panel mounted call station is intended for use in outdoor areas. Due to its modular design, as well as the arrangement in built-in housings with 3 or 4 integrable modules, it finds its application in many areas of industry and security technology through the programming of many special functions.

The DS-22 TTSD IP gate and door call station is broken down into individual modular assemblies. These include pure pushbutton plates, built-in loudspeakers, built-in microphones combined with pushbuttons, which are mounted in a mounting frame, as well as the integrated electronics in surface-mounted or flush-mounted housings. The flush-mounted housings fit into corresponding building openings provided for this purpose.

At the same time, the DS-22 TTSD IP gate and door call station also offers programmable local functions. In addition to the destination buttons for WL/EL, the DS-22 TTSD IP gate and door call station has monitoring of the electret microphone with electronic noise compensation and dynamic compression, volume control, an integrated voice memory for playing back customised announcement texts, tone sequences or audio files, which can be played back at the touch of a button.

The DS-22 TTSD IP gate and door call station has up to 8 line keys, depending on the modules used.

As standard, the DS-22 TTSD IP gate and door call station is powered via Power over Ethernet. Optionally, however, a DC 48V mains node power supply is also possible. For this purpose, the manufacturer supplies various mounting rail power supply units for installation in the network node.

DS-22 Call stations

DS-22 TTSD IP Gate and door call station

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (22kHz bandwidth)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for best speech intelligibility with wide frequency range
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Status messages, such as call and busy signals, are indicated by LEDs
- Cyclical acoustic self-test for loudspeaker and microphone monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Front panel aluminium or V2A design as surface-mounted or flush-mounted variant
- Integrated built-in loudspeaker
- Integrated electret microphone
- Up to eight buttons
- Optional potential-free relay contact for connection of a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node power supply available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications



DS-22 Call stations

DS-22 TTSD IP Gate and door call station

Mechanical data		
Weight	Approx. 1.8kg (depending on component)	
Housing dimensions (HxWxD)	Surface-mounted housing dimensions:	Flush-mounted housing dimensions:
	3 Module units 316,5mm x 157mm x 96mm	3 Module units 272mm x 105mm x 87mm
	4 Module units 406,5mm x 157mm x 96mm	4 Module units 360mm x 105mm x 87mm
	Front panel dimensions: 3 Module units 300mm x 120mm x 74mm 4 Module units 390mm x 120mm x 74mm	
Housing colour	Front panel aluminium or V2A design	
Material	Aluminium	
Number of talk keys	Depending on variant: 1-2-3-4-5-6-7-8 Keys	
Electrical data		
Nominal power consumption	20W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at during operation with a maximum of 2 Add-on housings	
PoE (including all expansion stages)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt for operation with more than 2 Add-on housing to full extension	
Mains node supply	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	-20°C to +55°C	
Protection class according to DIN 60529, resp. IEC 60529	IP54	



DS-22 Call stations

DS-22 TTSD IP Gate and door call station

Modular components Gate and door call stations DS-22 TTSD IP version, aluminium	
649 0104 360 3	Electronics base module DS-22 TTSD IP
On request	Flush-mounted housing for PCB mounting with 2 module units
On request	Flush-mounted housing for PCB mounting for 3 module units
On request	Flush-mounted housing for PCB mounting for 4 module units
On request	Surface-mounted aluminium housing for 2 module units
989 3106 402 2	Surface-mounted aluminium housing for 3 module units
989 3106 404 4	Surface-mounted aluminium housing for 4 module units
On request	Aluminium frame for 2 module units horizontal built-in
On request	Aluminium frame for 2 module units vertical built-in
989 3106 409 9	Aluminium frame for 3 module units horizontal built-in
989 3106 410 1	Aluminium frame for 3 module units vertical built-in
On request	Aluminium frame for 4 module units horizontal built-in
989 3106 412 3	Aluminium frame for 4 module units vertical built-in
989 3106 420 2	Aluminium loudspeaker module
989 3106 440 4	Aluminium microphone module
989 3106 450 5	Aluminium combination module microphone and two push buttons
On request	Aluminium module with three push buttons
989 3106 451 6	Aluminium module with two push buttons
989 3106 453 8	Aluminium module with one push buttons
989 3106 491 0	Aluminium blind cover for an unused module
On request	Aluminium labelling field
989 3106 470 7	Plexiglass cover card reader

DS-22 Call stations

DS-22 TTSD IP Gate and door call station

Modular components Gate and door call stations IP version, V2A design	
649 0104 360 3	Electronics base module DS-22 TTSD IP
On request	Flush-mounted housing for PCB mounting with 2 module units
612 3104 038 8	Flush-mounted housing for PCB mounting for 3 module units
On request	Flush-mounted housing for PCB mounting for 4 module units
On request	Surface-mounted housing for 2 module units in V2A design
989 3106 403 3	Surface-mounted housing for 3 module units in V2A design
On request	Surface-mounted housing for 4 module units in V2A design
On request	Front panel frame for 2 module units in V2A design horizontal built-in
On request	Front panel frame for 2 module units in V2A design vertical built-in
On request	Front panel frame for 3 module units in V2A design horizontal built-in
989 3106 411 2	Front panel frame for 3 module units in V2A design vertical built-in
On request	Front panel frame for 4 module units in V2A design horizontal built-in
On request	Front panel frame for 4 module units in V2A design vertical built-in
989 3106 421 3	Loudspeaker module in V2A design
989 3106 441 5	Microphone module in V2A design
989 3106 455 0	Combination module microphone and two push buttons in V2A design
989 3106 452 7	Module with three push buttons in V2A design
On request	Module with two push buttons in V2A design
989 3106 454 9	Module with one push button in V2A design
On request	Blind cover for an unused module space in V2A design
989 3106 490 9	Labelling field in V2A design
989 3106 470 7	Plexiglass cover card reader

Accessories	
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP ports for fibre-optic modules for 19" mounting in the network node For this: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre-optic multimode
919 1250 011 9	Replacement battery

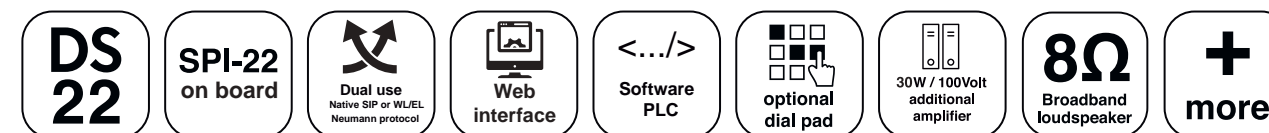




DS-22 Call stations

DS-22 WFD IP

Weatherproof digital call station (120mm width)



The DS-22 WFD IP weatherproof digital call station is used in intercom systems in the DS-22 decentralised communication system. It enables direct speech connections with other call stations and loudspeaker announcements outdoors and in rooms with a rough or noisy environment, e.g. in factories in heavy industry or in areas of railway engineering.

In the DS-22 decentralised communication system, two variants of the DS-22 WFD IP weatherproof digital call station are available with a dial keypad. Alternatively, the 12 keys of the dial keypad in the DS-22 system can be used as freely configurable line keys, but without optical indication.

Due to its integrated DR-Intercom and crossing barrier station functions, the DS-22 WFD IP weatherproof digital call station is ideally suited for use in railway applications. These functions facilitate communication between railway operators and allow road users to communicate with railway operators of manually controlled gated level crossings.

The DS-22 WFD IP weatherproof digital call stations described here have one to three double-toggle buttons for up to six lines, or two double-toggle buttons (two lines and two buttons for dialling control) and dialling keypad, and are available in the housing colour pure orange RAL 2004.

With a WFD Add-on housing connected, it is possible to expand the DS-22 WFD IP weatherproof digital call station by an additional 5 double toggle buttons with 10 additional lines, per WFD Add-on housing connected. Up to 4 WFD Add-on housings can be connected to a DS-22 WFD IP weatherproof digital call station. This allows a DS-22 WFD IP weatherproof digital call station to be fully equipped with a maximum of 46 buttons.

The DS-22 WFD IP weatherproof digital call station is connected to the DS-22 network via standard network cables. The standard power supply of the DS-22 WFD IP call station is PoE, a DC 48V power supply from the network node is optionally possible.

The DS-22 WFD IP call station already has an integrated 7W D-class monitoring or paging amplifier in 8Ω technology as standard, and in addition, depending on the delivery variant, partly already has an integrated 30W D-class additional amplifier in 100V technology. Call stations which do not have an integrated 30W Class-D additional amplifier at delivery are prepared for built-in and connection of a 30W Class-D additional amplifier with the L.-No. 221 6001 666 0, see accessories.

Here, however, the connection type must be urgently considered, see Installation. Both additional amplifiers can operate a local loudspeaker circuit (LC).

DS-22 Call stations

DS-22 WFD IP

Weatherproof digital call station (120mm width)

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signalling, by means of LEDs
- Cyclic acoustic test for microphone and loudspeaker monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Dust- and water-resistant glass-fibre reinforced polyester housing
- Horn loudspeaker
- Integrated electret microphone
- Up to three freely inscribable double toggle speech buttons with opto-couplers, each for two lines
- Expandable by up to four Add-on housings, each with five freely inscribable double toggle speech buttons with opto-couplers, each for two lines
- Switchable volume reduction, e.g. for night operation
- Optional expandability with headset, foot switch or microphone
- Integrated connection for monitoring or announcement loudspeaker
- Dialling function with or without keypad
- EL mode with own additional loudspeaker as standard; volume configurable
- Potential-free relay contact for connection of a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node power supply or weatherproof local power supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Disconnection of the auxiliary loudspeaker after the first WL response as a standard feature
- With and without integrated 30W Class-D auxiliary amplifier in 100V technology
- Loudspeaker impedance monitoring of the 30W Class-D auxiliary amplifier
- Optional impedance measurement at the 100V connection of the 30W Class-D amplifier
- Temperature-controlled power limitation of the 30W Class-D auxiliary amplifier.
- Setting of 100V loudspeaker volume internally
- Optional range extenders available
- Adjustment of microphone level and loudspeaker volume internally
- Connections and cable glands for additional components, e.g. loudspeaker and controlled powered flashing beacon for visual signalling or controlled powered horn for audible signalling, as standard
- Mounting of the call station after lifting off the housing cover through four mounting holes in the basic housing



DS-22 Call stations

DS-22 WFD IP

Weatherproof digital call station (120mm width)

Technical data		
Art. no.	1 663 6 DS-22 WFD IP 6 Lines PoE	
	1 664 7 DS-22 WFD IP 4 Lines PoE	
	1 665 8 DS-22 WFD IP 2 Lines PoE	
	1 666 9 DS-22 WFD IP 6 Lines PoE 30W amplifier	
	1 667 0 DS-22 WFD IP 4 Lines PoE 30W amplifier	
	1 668 1 DS-22 WFD IP 2 Lines PoE 30W amplifier	
	1 669 2 DS-22 WFD IP 4 Lines PoE	
	1 670 4 DS-22 WFD IP 4 Lines PoE dial keypad 30W amplifier	
1 620 9 DS-6/DS-22 WFD IP Add-on housing 10-fold digital		
Mechanical data		
Weight	1 6xx x call station Approx. 5.5kg	1 620 9 Add-on housing Approx. 4kg
Housing dimensions (HxWxD)	500mm x 120mm x 180mm	
Housing colour	Pure orange (RAL 2004)	
Material	Polyester, glass fibre reinforced	
Number of talk keys	4-6	10 per Add-on housing 10-20-30-40 (depending on number of enclosures)
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Maximum power consumption (including all expansion stages)	90W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at during operation with a maximum of 2 Add-on housing	
PoE (including all expansion stages)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt for operation with more than 2 Add-on housing to full extension	
Mains node supply (without expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit	
Mains node supply (including all expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node supply via 150W mounting rail power supply unit	
Local supply (without expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 60W external weatherproof power supply module	
Local supply (including all expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 150W external weatherproof power supply module	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	-20°C to +55°C / 70°C	
Protection class according to DIN 60529, resp. IEC 60529	IP66	



DS-22 Call stations

DS-22 WFD IP

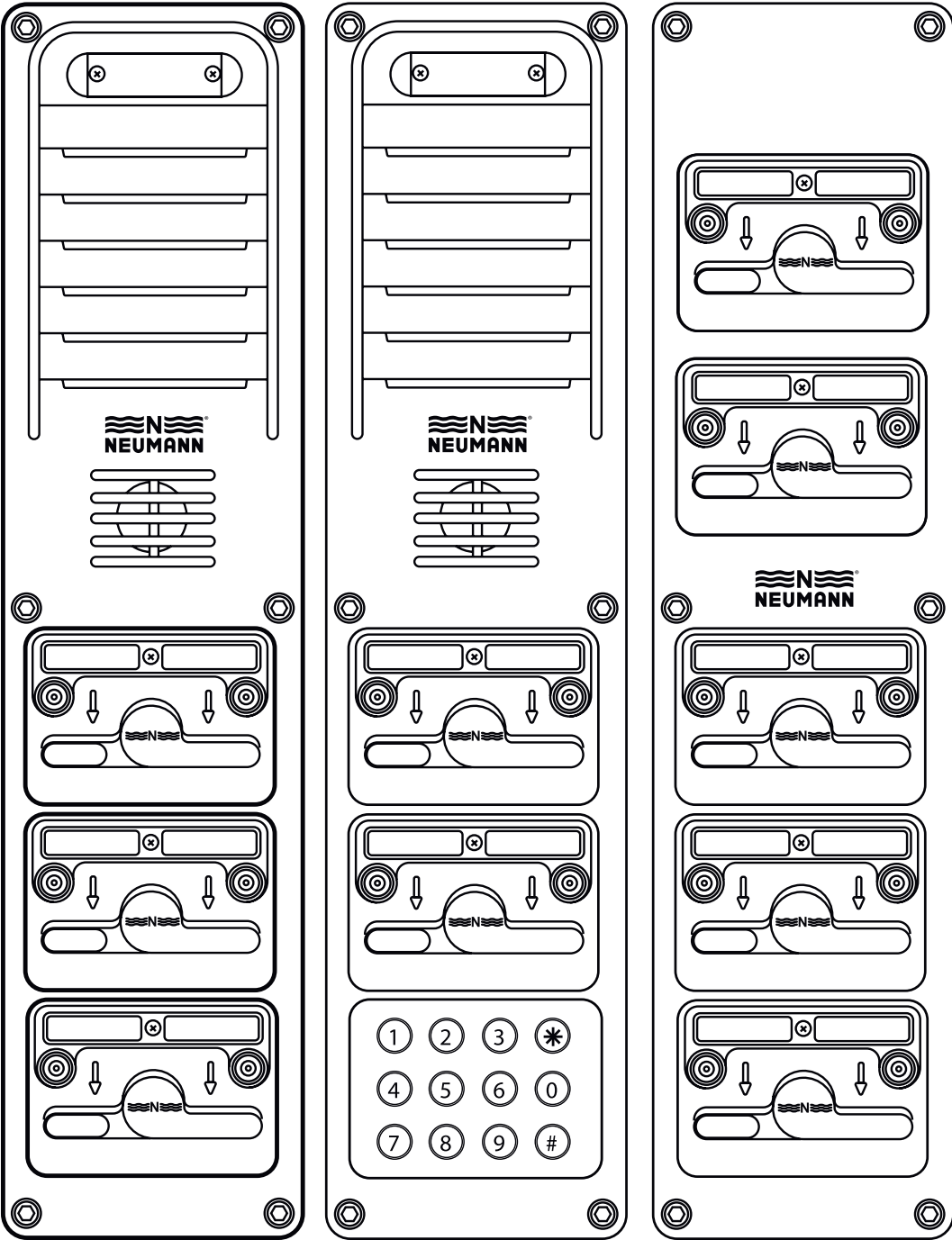
Weatherproof digital call station (120mm width)

Accessories	
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE injector according to IEEE802.3bt (90W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP ports for fibre optic modules for 19“ mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for additional devices monitoring loudspeaker, relay contact with additional component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel, and connection cable
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
221 6001 666 0	30W Class-D auxiliary amplifier
229 8001 666 0	DS-22 module for tool-free connection of installation cables
229 8101 666 1	DS-22 module for connecting installation cables with LSA+ fastening
229 8301 666 3	DS-22 module UTP extender for range extension to 500m and power supply via PoE
229 8401 666 4	DS-22 module fibre optic single-mode pair for range extension to 10km with fibre optic interface: SC
229 8501 666 5	DS-22 module fibre optic multi-mode pair for range extension to 4km with fibre optic interface: SC
1 950 5	Pedestal pure orange (RAL 2004) for call station with 120mm width
649 0109 031 3	Weatherproof sound-absorbing bonnet for outdoor use
649 0109 004 3	Sound-absorbing bonnet for indoor use
212 3408 261 9	Protective cover RAL 2004 small, V2A Dimensions: 600mm x 300mm x 250mm
979 4413 561 9	Hexagon spanner SW5 for hexagon socket screws on the housing cover
229 0501 560 0	Mounting kit with mounting holes for call stations of width 100mm, including 2 mounting brackets and 4 hexagonal screws V2A M6 x 18mm for mounting on the call station
222 1601560 5	Key insert instead of a dial keypad
212 1831 193 1	Blind insert
223 0101 681 4	Dial keypad
221 6001 666 0	30W Class-D auxiliary amplifier 100V
919 1250 011 9	Replacement battery

DS-22 Call stations

DS-22 WFD IP

Weatherproof digital call station (120mm width)





DS-22 Call stations

DS-22 WFDR IP

Weatherproof digital call station (100mm width)



The DS-22 WFD IP 3 line weatherproof digital call station is used in intercom systems in the DS-22 decentralised communication system. It enables direct voice connections with other call stations and loudspeaker announcements outdoors and in rooms with harsh or noisy environments, e.g. in heavy industry operations or railway engineering areas.

With its integrated DR-Intercom and crossing barrier station functions, the DS-22 WFD IP weatherproof digital call station is ideally suited for use in railway applications. These functions facilitate communication between railway operators and enable communication between road users and railway operators of manually controlled level crossings.

The DS-22 WFDR IP 3 line weatherproof digital call stations described here have one to three single toggle buttons for up to three lines and are available in the housing colours pure orange RAL 2004 and golden yellow RAL 1004.

The call stations of this retro-design are primarily used to replace existing call stations of other technologies, taking into account the previous mounting positions, e.g. in recesses.

With a connected WFDR 3 line Add-on housing, it is possible to expand the DS-22 WFDR IP 3 line weatherproof digital call station by an additional 3 single toggle buttons with three additional lines, per connected WFDR Add-on housing. Up to four WFDR 3 line Add-on housings can be connected to a DS-22 WFDR IP 3 line weatherproof digital call station. This makes it possible to equip a DS-22 WFDR IP 3 line weatherproof digital call station in full configuration with a maximum of 18 buttons.

The DS-22 WFDR IP 3 line weatherproof digital call station is connected to the DS-22 network via standard network cables. The standard power supply of the DS-22 WFDR IP 3 line weatherproof digital call station is PoE, a DC 48V power supply from the network node is optionally possible.

The DS-22 WFDR IP 3 line weatherproof digital call station already has an integrated 7W D-Class monitoring or paging amplifier in 8Ω technology as standard, and in addition, depending on the delivery variant, partly already has an integrated 30W D-Class additional amplifier in 100V technology.

Call stations that do not have an integrated 30W Class-D additional amplifier are prepared for built-in and connection of a 30W Class-D additional amplifier. However, the type of connection must be taken into account. Both additional amplifiers can operate a local loudspeaker circuit (LC).

DS-22 Call stations

DS-22 WFDR IP Weatherproof digital call station (100mm width)

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signals, by means of light-ewithting diodes
- Cyclic acoustic test for microphone and loudspeaker monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Microphone / loudspeaker monitoring
- Dust- and water-resistant glass-fibre reinforced polyester housing
- Horn loudspeaker
- Integrated electret microphone
- Up to three freely inscribable single toggle speech buttons with opto-couplers, each for one line
- Can be extended by up to four Add-on housings, each with three freely inscribable single toggle speaker buttons with opto-couplers, each for one line
- Switchable volume reduction, e.g. for night operation
- Optional expandability with headset, foot switch or microphone
- Integrated connection for monitoring or announcement loudspeaker
- Dialling function with or without keypad
- EL mode with own additional loudspeaker as standard; volume configurable
- Potential-free relay contact for connection of a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node power supply or weatherproof local power supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Disconnection of the auxiliary loudspeaker after the first WL response as a standard feature
- With and without integrated 30W Class-D auxiliary amplifier in 100V technology
- Loudspeaker impedance monitoring of the 30W Class-D auxiliary amplifier
- Optional impedance measurement at the 100V connection of the 30W Class-D amplifier
- Temperature-controlled power limitation of the 30W Class-D auxiliary amplifier
- Internal 100V speaker volume setting
- Optional range extenders available
- Internal microphone level and loudspeaker volume adjustment
- Connections and cable glands for additional components, e.g. loudspeaker and controlled powered flashing beacon for visual signalling or controlled powered horn for audible signalling, as standard
- Mounting of the call station after lifting off the housing cover through four mounting holes in the basic housing



DS-22 Call stations

DS-22 WFDR IP Weatherproof digital call station (100mm width)

Technical data		
Art. no.	1 814 4 DS-22 WFDR IP 3 Lines golden yellow (RAL1004)	
	1 815 5 DS-22 WFDR IP 3 Lines pure orange (RAL 2004)	
	1 818 8 DS-22 WFDR IP 3 Lines 30W golden yellow (RAL1004)	
	1 819 9 DS-22 WFDR IP 3 Lines 30W pure orange (RAL 2004)	
	1 816 6 DS-22 WFDR IP Add-on housing 3 Lines golden yellow (RAL1004)	
	1 817 7 DS-22 WFDR IP Add-on housing 3 Lines pure orange (RAL 2004)	
	1 823 4 DS-22 WFDR IP Add-on housing 3 Lines golden yellow (RAL 1004) without holes	
	1 824 5 DS-22 WFDR IP Add-on housing 3 Lines pure orange (RAL 2004) without holes	
Mechanical data		
Weight	1 8xx x call station Approx. 4.5kg	1 816 6 / 1 817 7 Add-on housing Approx. 2.5kg
Housing dimensions (HxWxD)	500mm x 100mm x 210mm	
Housing colour	Pure orange (RAL 2004) / golden yellow (RAL1004)	
Material	Polyester, glass fibre reinforced	
Number of talk keys	3	3 per Add-on housing 3-6-9-12-15 (depending on number of enclosures)
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Maximum power consumption (including all expansion stages)	90W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface in two pairs with PoE Class 4 according to IEEE 802.3at during operation with maximum 2 Add-on housing	
PoE (including all expansion stages)	PoE Spare Pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt when operating with more than two Add-on housing to full expansion	
Mains node supply (without expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit	
Mains node supply (including all expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node supply via 150W mounting rail power supply unit	
Local supply (without expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 60W external weatherproof power supply module	
Local supply (including all expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 150W external weatherproof power supply module	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	-20°C to +55°C / 70°C	
Protection class according to DIN 60529, resp. IEC 60529	IP64	



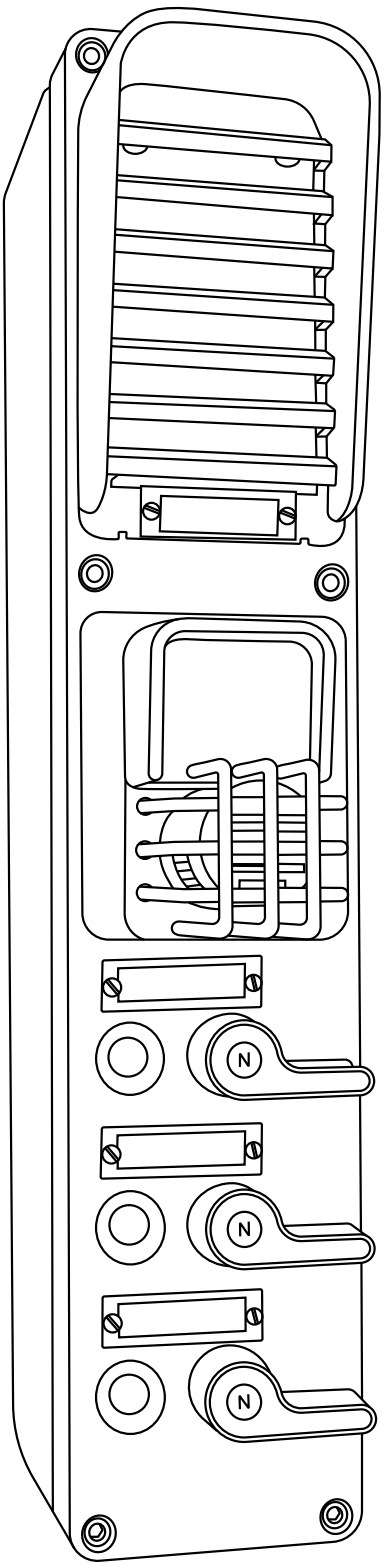
DS-22 Call stations

DS-22 WFDR IP Weatherproof digital call station (100mm width)

Accessories	
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 6001 816 5	DS-22 WFDR IP Add-on housing with dummy plate golden yellow (RAL1004) for flanging under a DS-22 WFDR IP call station or a DS-22 WFDR IP Add-on housing
229 6001 817 6	WFDR IP Add-on housing with blind plate pure orange (RAL 2004) for flanging under a DS-22 WFDR IP call station or a DS-22 WFDR IP Add-on housing
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 150W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE injector according to IEEE802.3bt (90W) for rail mounting in the power node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP portsfor fibre-optic modules for 19“ mounting in the network node For this purpose: 919 1116 726 3 licences per unit919 1116 725 2 SFP module fibre-optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for additional devices, monitor loudspeaker, relay contact with additional component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel and connection cable
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
221 6001 666 0	30W Class-D auxiliary amplifier
229 8001 666 0	DS-22 module for tool-free connection of installation cables
229 8101 666 1	DS-22 module for connecting installation cables with LSA+ fastening
229 8301 666 3	DS-22 module UTP extender for range extension to 500m and power supply via PoE
229 8401 666 4	DS-22 module fibre optic single-mode pair for range extension to 10km with fibre optic interface: SC
229 8501 666 5	DS-22 module fibre optic multi-mode pair for range extension to 4km with fibre optic interface: SC
1 952 7	Pedestal golden yellow RAL 1004 for call stations with 100mm width
1 953 8	Pedestal pure orange RAL 2004 for call stations with 100mm width
1 925 7	Add-on housing with closed cover golden yellow RAL 1004
1 926 8	Add-on housing with closed cover pure orange RAL 2004
1 965 1	Intermediate flange for mounting 2 units side by side on a pedestal
649 0109 031 3	Weatherproof sound-absorbing bonnet for outdoor use
649 0109 004 3	Sound-absorbing bonnet for indoor use
212 3408 261 9	Protective cover RAL 2004 small, V2A Dimensions: 600mm x 300mm x 250mm
979 4413 561 9	Hexagon spanner SW5 for hexagon socket screws on the housing cover
214 1621 002 9	Cover plug bolt for unused toggles
229 9001 814 6	Square toggle
229 9101 814 7	Triangular toggle
919 1250 011 9	Replacement battery

DS-22 Call stations

DS-22 WFDR IP Weatherproof digital call station (100mm width)





DS-22 Call stations

DS-22 WFDK IP

Weatherproof digital compact call station



The DS-22 WFDK IP weatherproof digital compact call station is used in intercom systems in the DS-22 decentralised communication system. It enables direct voice connections with other call stations and loudspeaker announcements outdoors and in rooms with harsh or noisy environments, e.g. in heavy industry operations or railway engineering areas.

The DS-22 WFDK IP weatherproof digital compact call station has 6 illuminated push-buttons with 6 lines and is available in the housing colours pure orange RAL 2004 and golden yellow RAL 1004.

With a WFDK Add-on housing connected, it is possible to expand the DS-22 WFDK IP weatherproof digital compact call station by an additional 12 illuminated push buttons with 12 additional lines, per WFDK Add-on housing connected. Up to four WFDK Add-on housings can be connected to a DS-22 WFDK IP weatherproof digital compact call station. This allows a DS-22 WFDK IP weatherproof digital compact call station to be fully equipped with a maximum of 54 buttons.

The DS-22 WFDK IP weatherproof digital compact call station is connected to the DS-22 network via standard network cables. The standard power supply of the DS-22 WFDK IP weatherproof digital compact call station is PoE, a DC 48V power supply from the network node is optionally possible.

The DS-22 WFDK IP weatherproof digital compact call station already has an integrated 7W Class-D monitoring or paging amplifier in 8Ω technology as standard.

DS-22 Call stations

DS-22 WFDK IP Weatherproof digital compact call station

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeakers for best speech intelligibility with wide frequency range
- Integrated Class-D 7W amplifier for on/off mode or monitoring loudspeaker in standard technology with 8Ω loudspeakers
- One Ethernet interface and one service interface
- Line keys can be freely assigned with destinations
- Indication of status messages, such as call and busy signalling, by means of LEDs
- Cyclic acoustic test for microphone and loudspeaker monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Dust- and water-resistant glass-fibre reinforced polyester housing
- Dynamic built-in loudspeaker
- Integrated electret microphone
- 6 illuminated push-to-talk buttons
- Can be extended by up to four Add-on housings, each with six or twelve illuminated push-to-talk buttons, each for one line
- Switchable volume reduction, e.g. for night use
- Optional expandability with headset, foot switch or microphone
- Integrated connection for monitoring or announcement loudspeaker
- EL operation with own additional loudspeaker as standard; volume configurable
- Potential-free relay contact for connecting a flashing light for visual signalling or a signal horn for acoustic signalling
- PoE phantom or PoE spare pairs power supply
- Optional mains node power supply or weatherproof local power supply DC 48V available
- DR-Intercom and crossing barrier station as integrated special functions for railway applications
- Optional range extenders available
- Adjustment of microphone level and loudspeaker volume internally
- Connections and cable glands for additional components, e.g. loudspeaker and controlled powered flashing beacon for visual signalling or controlled powered horn for audible signalling, as standard
- Mounting of the call station after lifting off the housing cover through four mounting holes in the basic housing

DS-22 Call stations

DS-22 WFDK IP Weatherproof digital compact call station

Technical data		
Art. no.	1 958 3 DS-22 WFDK IP 6 Lines golden yellow (RAL 1004) 1 959 4 DS-22 WFDK IP 6 Lines pure orange (RAL 2004) 1 978 5 DS-22 WFDK IP Add-on housing 12 Lines golden yellow (RAL1004) 1 979 6 DS-22 WFDK IP Add-on housing 12 Lines pure orange (RAL 2004)	
Mechanical data		
Weight	call station Approx. 2,3kg	Add-on housing Approx. 2.5kg
Housing dimensions (HxWxD)	250mm x 100mm x 195mm	
Housing colour	Pure orange (RAL 2004) / golden yellow (RAL1004)	
Material	Polyester, glass fibre reinforced	
Number of talk keys	3-6	6 per Add-on housing 6-12-18-24-30 12 per Add-on housing 12-24-36-48-60
Electrical data		
Nominal power consumption (without expansion stages)	20W	
Maximum power consumption (including all expansion stages)	90W	
Frequency range	100Hz to 22kHz (depending on the set codec)	
Connectivity		
PoE (without expansion stages)	PoE phantom call station power supply via the Ethernet interface two-pair with PoE Class 4 according to IEEE 802.3at during operation with a maximum of 2 Add-on housing	
PoE (including all expansion stages)	PoE spare pairs call station power supply via the Ethernet interface four-pair with PoE Class 8 according to IEEE 802.3bt for operation with more than 2 Add-on housing to full extension	
Mains node supply (without expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node power supply via 60W trunking power supply unit	
Mains node supply (including all expansion stages)	For locations without PoE call station power supply, optional DC 48V mains node supply via 150W mounting rail power supply unit	
Local supply (without expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 60W external weatherproof power supply module	
Local supply (including all expansion stages)	For locations without PoE call station power supply, optional local power supply DC 48V by 150W external weatherproof power supply module	
Mains supply		
Ethernet interfaces	1 (IEEE 802.3u)	
Service interfaces	1	
Transmission protocol	Neumann DS-22 IP	
Environmental conditions		
Temperature range	-20°C to +55°C / 70°C	
Protection class according to DIN 60529, resp. IEC 60529	IP66	

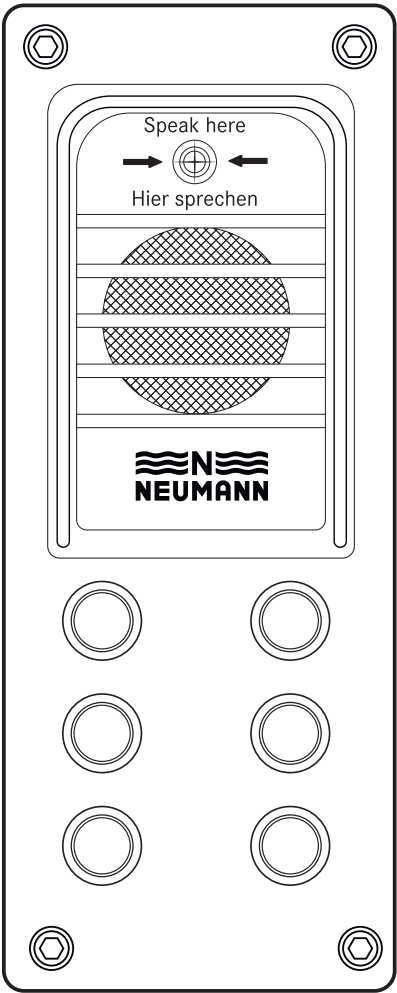
DS-22 Call stations

DS-22 WFDK IP
Weatherproof digital compact call station

Accessories	
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
949 1412 173 1	Carrier rail power supply AC 230V / DC 48V 150W for mains node supply
229 6001 816 5	DS-22 WFDK IP Add-on housing with dummy plate golden yellow (RAL1004) for flanging under a DS-22 WFDK IP call station or a DS-22 WFDR IP Add-on housing
229 6001 817 6	DS-22 WFDK IP Add-on housing with blind plate pure orange (RAL 2004) for flanging under a DS-22 WFDK IP call station or a DS-22 WFDK IP Add-on housing
229 8601 666 6	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
229 8701 666 7	External power supply module in weatherproof housing AC 230V / DC 48V 60W for local power supply of DS-22 units
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
919 1116 098 5	PoE injector according to IEEE802.3bt (90W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 173 1 required for power supply)
919 1116 724 1	24-port switch Class 4 with 600W and 4 additional SFP ports for fibre optic modules for 19" mounting in the network node For this purpose: 919 1116 726 3 licences per unit 919 1116 725 2 SFP module fibre optic multimode
919 1116 759 9	8-port switch with 4 ports PoE Class 8 for rail mounting in the network node
223 7001 175 8	Retrofit kit for additional devices headset, microphone and foot switch with 8-pin M12 round connector, consisting of exchangeable back panel, printed circuit board assemblies with connection cable
223 7101 175 9	Retrofit kit for additional devices monitoring loudspeaker, relay contact with additional component supply DC 24V/15W with 8-pole M12 round plug connector, consisting of exchangeable back panel, and connection cable
999 1980 088 1	T-piece for connecting 2 additional devices to an 8-pole M12 round connector
223 7201 175 0	Headset with PTT button integrated in the line and 8-pin M12 circular connector
223 7301 175 1	External handheld microphone with PTT button and 8-pin M12 circular connector
223 7401 175 2	External foot switch with 8-pin M12 round connector
229 8001 666 0	DS-22 module for tool-free connection of installation cables
229 8101 666 1	DS-22 module for connecting installation cables with LSA+ fastening
229 8301 666 3	DS-22 module UTP extender for range extension to 500m and power supply via PoE
229 8401 666 4	DS-22 module fibre optic single-mode pair for range extension to 10km with fibre optic interface: SC
229 8501 666 5	DS-22 module fibre optic multi-mode pair for range extension to 4km with fibre optic interface: SC
1 952 7	Pedestal golden yellow RAL 1004 for call stations with 100mm width
1 953 8	Pedestal pure orange RAL 2004 for call stations with 100mm width
1 925 7	Add-on housing with closed cover golden yellow RAL 1004
1 926 8	Add-on housing with closed cover pure orange RAL 2004
1 965 1	Intermediate flange for mounting 2 units side by side on a pedestal
649 0109 031 3	Weatherproof sound-absorbing bonnet for outdoor use
649 0109 004 3	Sound-absorbing bonnet for indoor use
212 3408 261 9	Protective cover RAL 2004 small, V2A Dimensions: 600mm x 300mm x 250mm
979 4413 561 9	Hexagon spanner SW5 for hexagon socket screws on the housing cover
919 1250 011 9	Replacement battery

DS-22 Call stations

DS-22 WFDK IP
Weatherproof digital compact call station

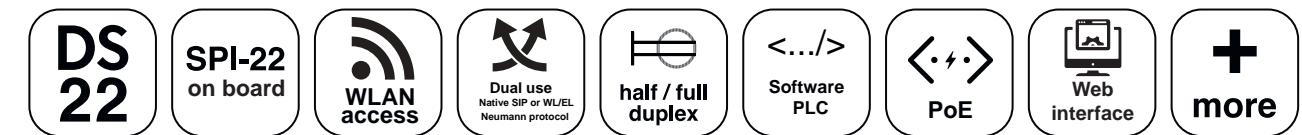




DS-22 Call stations

DS-22 DKS IP

Digital crane call station



The DS-22 DKS IP digital crane call station is used in intercom systems in the DS-22 decentralised communication system. It enables direct voice connections with other call stations and loudspeaker announcements outdoors and in rooms with a rough or noisy environment, e.g. in heavy industry operations with crane or excavator technology.

The DS-22 DKS IP digital crane call station is designed for communication via wireless LAN.

A WLAN access client / point is not included in the scope of delivery of the unit, but can be purchased from the manufacturer as an accessory, see Accessories. The units comply with both IEEE 802.11a/b/g/h/i and IEEE.802.11n standards for WLAN connections with two different frequency bands 2.4GHz and 5GHz.

The DS-22 DKS IP digital crane call station has sixteen destination buttons and is available in the housing colour pure orange RAL 2004.

The DS-22 WFD IP weatherproof digital call station is connected to the DS-22 network via standard network cables.

In addition, the DS-22 DKS IP digital crane call station must be supplied with AC 230V.

DS-22 Call stations

DS-22 DKS IP Digital crane call station

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- Dual use - Native SIP protocol / terminal or WL/EL Neumann protocol selectable
- Half / full duplex compatibility
- Software PLC
- Direct voice connections via key-controlled line selection
- High speech intelligibility (up to 22kHz bandwidth - depending on codec selection)
- Low and high volume control (12dB level reduction)
- Integrated voice memory
- Free key assignment as WL target keys or for local functions
- Integrated Class-D 7W amplifier for horn loudspeaker for best speech intelligibility with wide frequency range
- Line keys can be freely assigned to destinations
- Status messages, such as call and busy signals, are indicated by LEDs
- Cyclic acoustic test for microphone and loudspeaker monitoring
- Fault management via IoT MQTT interface
- Adjustable and monitored electret microphone with electronic noise compensation and dynamic compression
- Microphone / loudspeaker monitoring
- Dust- and water-resistant V2A and aluminium housing
- Dynamic built-in loudspeaker
- Flexible gooseneck electret microphone 420mm length
- Call station with 16 push-button line keys
- Switchable volume reduction, e.g. for night operation
- Integrated connection for monitoring or announcement loudspeaker
- Integrated power supply
- Integrated PoE injector
- Power supply of an external WLAN access client via the crane station (PoE)
- Mounting on the seat of the crane or excavator operator



DS-22 Call stations

DS-22 DKS IP Digital crane call station

Technical data	
Art. no.	1 196 7
Mechanical data	
Weight	Approx. 5kg
Housing dimensions (HxWxD)	270mm x 194mm x 90mm (without gooseneck microphone and without mounting plate)
Housing colour	Pure orange (RAL 2004)
Material	V2A / Aluminium
Number of talk keys	16
Electrical data	
Nominal power consumption	20W
Frequency range	100Hz to 22kHz (depending on the set codec)
Connectivity	
Mains supply	Mains supply with AC 230V
Ethernet interfaces	1 (IEEE 802.3u)
Service interfaces	1
Transmission protocol	Neumann DS-22 IP
Environmental conditions	
Temperature range	0°C to +50°C
Protection class according to DIN 60529, resp. IEC 60529	IP65



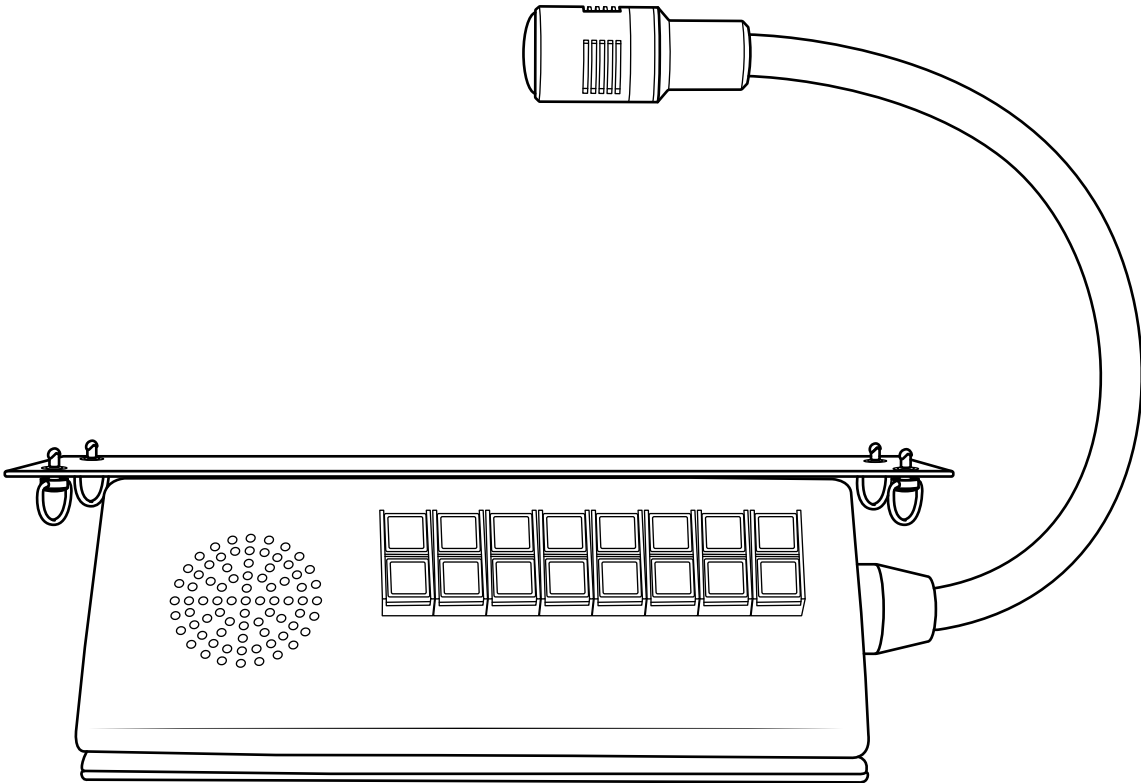
DS-22 Call stations

DS-22 DKS IP
Digital crane call station

Accessories	
919 1116 946 7	Indoor WLAN access client / point according to IEEE 802.11 a/b/g/h/n equipped with two radio modules. For use in the crane or excavator cabin and/or as a ground station for the 2.4GHz and 5GHz frequency bands. Protection class: IP30
919 1116 945 6	Outdoor WLAN access client / point according to IEEE 802.11 a/b/g/h/n. Use in the crane or excavator cab and/or as a ground station for the 2.4GHz and 5GHz frequency bands. Protection class: IP65/67
949 1412 102 3	Power supply unit for supplying the WLAN access client / point for mounting rail installation (only suitable for indoor use)
949 1412 103 4	Power supply unit for supplying the WLAN access client / point for mounting rail installation. (for outdoor use, the unit must be housed in a weatherproof enclosure)
919 1150 019 6	Omnidirectional rod antenna for outdoor use. Frequency band: 5GHz
919 1150 018 5	Omnidirectional rod antenna for outdoor use. Frequency band: 2.4GHz
999 1980 263 6	Antenna connection cable, 3 metres
919 1111 446 7	Illuminant LED white for use in push buttons
929 1216 026 8	Push-button cover clear for push buttons
223 0101 156 1	Bracket for crane call station
999 1980 240 1	2m power supply cable with moulded connector 7/8" and screw cap, IP67
999 1980 241 2	5m power supply cable with moulded connector 7/8" and screw cap, IP67
999 1980 242 3	10m power supply cable with moulded connector 7/8" and screw cap, IP67
999 1980 245 6	2m network connection with moulded plugs, M12 coupling on one side, IP67
999 1980 246 7	5m network connection with moulded plugs, M12 coupling on one side, IP67
999 1980 247 8	10m network connection with moulded connectors, M12 coupling on one side, IP67
989 310 7041 2	Quick access locking ring
989 310 7042 3	Hanger handle with quick release fastener
989 3107 040 1	Quick access shock absorber
929 1216 022 4	Lamp puller
929 1215 051 5	Puller for hoods
919 1250 011 9	Replacement battery

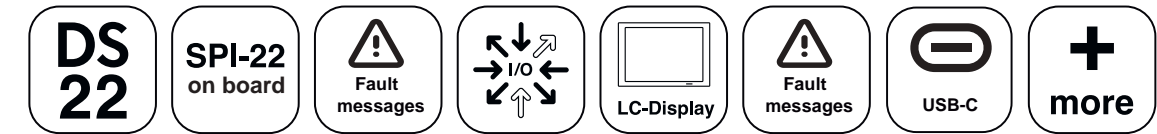
DS-22 Call stations

DS-22 DKS IP
Digital crane call station



DS-22 Module

DS-22 IO fault indication module IP



The DS-22 IP fault indication module is used in the DS-22 decentralised communication system.

It enables the collection, display and management of fault messages.

The DS-22 IP fault indication module is intended for indoor use, primarily in network nodes. It is mounted on TS35 mounting rail. Due to its versatility and large optional expandability through input and output ports, it is used in many areas of heavy industry and railway technology.

The optional expansion is carried out by means of the RS485 interface in the unit. RTU modbus-capable components can be adapted to it.

DS-22-independent IP components can also be monitored via the ICMP interface in the unit.

At the same time, the DS-22 IP fault indication module offers both the local display of faults of all terminal devices present in the DS-22 system via the built-in illuminated two-line display, as well as a forwarding of the fault messages via relay contacts. The integrated MQTT interface enables forwarding to an existing MQTT broker in the DS-22 system or to any other MQTT broker. In addition, the fault messages can be displayed in a management system connected to the DS-22 system.

In addition to its actual task as a master in the DS-22 fault management system, the DS-22 IP fault indication module is also able to perform monitoring functions via the inputs and control functions via the outputs thanks to the MQTT interface integrated in the device.

For connecting an optional monitor, the DS-22 IP fault indication module has two HDMI connections. For the connection of optional USB devices, 4 USB-A ports are available.

By default, the DS-22 IP fault indication module is powered via Power over Ethernet. Furthermore, the device can also be powered via USB-C. If no PoE supply or USB-C supply is available in the network node, an optional PoE injector can be used or an optional DC 5V local supply. For this purpose, the manufacturer supplies a PoE injector or a mounting rail power supply unit for local power supply as accessories.

DS-22 Module

DS-22 IO fault indication module IP

- Full compatibility with DS-22 system / SPI-22 platform
- Remotely configurable and remotely monitorable
- Configuration via WEB interface
- One Ethernet interface
- Fault management via IoT MQTT interface
- Additional display of status messages and fault messages in the two-line illuminated display
- Standard PoE power supply
- Optional mains node supply or local supply DC 5V available
- 4 outputs for fault message forwarding
- MODBUS interface for coupling expansion modules
- 16 additional inputs each through optional extension modules
- 8 additional outputs each through optional extension modules

Accessories	
949 1412 172 0	Carrier rail power supply AC 230V / DC 48V 60W for mains node supply
919 1116 097 4	PoE injector according to IEEE802.3at (30W) for rail mounting in the mains node (Attention! Power supply unit 949 1412 172 0 required for power supply)
949 1412 190 0	Carrier rail power supply DC 5V 25W
919 1116 241 5	Extension module with 16 inputs and 8 outputs (Attention! Power supply unit 949 1412 190 0 required for power supply)
919 1250 012 0	Replacement battery



DS-22 Module

DS-22 IO fault indication module IP

Technical data	
Art. no.	649 0145 013 3
Mechanical data	
Weight	Approx. 0.5kg
Housing dimensions (HxWxD)	140mm x 150mm x 70mm (without connector)
Housing colour	Black
Material	Polystyrene
Electrical data	
Nominal power consumption (without expansion stages)	Approx. 3.5W
Maximum power consumption (including all expansion stages)	Approx. 7W
Connectivity	
PoE (without expansion stages)	PoE power supply Class 0 according to IEEE 802.3af
USB-C power supply	USC-C supply
Power supply DC 5V	Optional power supply via mains power supply unit DC 5V / 30W
Ethernet interfaces	1 (IEEE 802.3u)
Transmission protocol	Neumann DS-22 IP
Environmental conditions	
Temperature range	0°C to +50°C
Protection class according to DIN 60529, resp. IEC 60529	IP20



The technology in detail

IP protection classes

According to DIN 40 050 / IEC / VDE 0470 / EN 60529.

The degrees of protection are identified by internationally valid abbreviations: a two-digit IP code number (International Protection) indicates the degree of protection of the enclosure against the ingress of foreign bodies, dust and water.

Example of a code number: IP65¹⁾.

First IP code number	Protection levels for contact and foreign body protection	Second IP code number	Degrees of protection for water protection
0	Unprotected	0	Unprotected
1	Protected against the penetration of large foreign bodies with a diameter greater than 50mm.	1	Protected against the penetration of vertically falling dripping water
2	Protected against the penetration of medium-sized foreign bodies with a diameter greater than 12mm	2	Protected against dripping water falling at an angle of up to 15° from the vertical.
3	Protected against the penetration of small foreign bodies with a diameter greater than 2.5mm.	3	Protected against water spray falling at any angle up to 60° from vertical
4	Protected against the penetration of tools, wires (granular foreign bodies) with a diameter greater than 1.0mm.	4	Protected against water splashing against the equipment from all directions.
5	Complete protection against contact with live or internal moving parts. Protection against harmful dust deposits. The ingress of dust is not completely prevented, but the dust must not penetrate in such quantities that the function is impaired.	5	Protected against water jets from a nozzle directed against the equipment from all directions.
6	Complete protection against contact with live or internal moving parts. Protection against ingress of dust.	6	Protected against strong jets of water or temporary flooding
		7	Protected against temporary immersion in water, under the specified pressure/time conditions of 0.15-m
		8	Protected against permanent immersion in water
		9K	Protected against water directed against the enclosure from any direction under high pressure/steam jet cleaning

1) If no IP degree of protection is specified, the letter X replaces the respective digit, e.g. IPX4.


The technology in detail

General information on the marking of explosion-protected equipment

The marking of electrical equipment and protective systems intended for use in potentially explosive atmospheres is carried out in accordance with the requirements of EC Directive 2014/34/EU.

Example of labelling:  II 2G Ex db ib IIC T4

Explanation of this example

	Ex sign
II	Device group II
2	Device category 2 (open-pit)
G	Gases/vapours, suitable for zone 1 and 2
Ex	Explosion protection according to EN IEC 60079-0 ff
db	Pressure-proof enclosure Ex d
ib	Intrinsic safety Ex i
IIC	Explosion group (open pit, subgroup C)
T4	Temperature classification

Explanation of explosion protection:

Zones / Unit group / Unit category

There are 2 equipment groups: for underground use the number “I” is assigned, above ground the number “II”. Hazardous explosive atmospheres are divided into zones or according to the degree of probability of the occurrence of an explosive atmosphere. Equipment of the corresponding equipment category (area of use) must be used in the respective zones. In the current IEC regulation, the zones are defined as follows:

Classification of the Ex-areas / equipment category / equipment group				
Combustible substances	Behaviour of the combustible substances	Zones	Equipment group (use above ground or underground)	Device category
G: Gases, mists, vapours	Are present constantly, for a long time or frequently	Zone 0	II	1G
	Occasionally occur	Zone 1	II	2G (also 1G)
	Probably do not occur, if they do, only rarely or briefly	Zone 2	II	3G (also 2G and 1G)
D: Dust	Are present constantly, for a long time or frequently	Zone 20	II	1D
	Occasionally occur	Zone 21	II	2D (also 1D)
	Probably not occur due to whirled-up dust, if only rarely or for a short time	Zone 22	II	3D (also 2D and 1D)
M: Methane / Dust	- -	Mining	I	M1 M2 or M1

The technology in detail

General information on the marking of explosion-protected equipment

Explosion subgroup : Classification of gases and vapours

Equipment group “II” is divided into three gas groups, with IIA being the least flammable and IIC the most flammable. In the USA there is a different division according to “Classes” (I, II, III): “Class I” refers to gases and vapours (see table).

Explosive subgroup / Representative vapours		
CENELEC / IEC	Representative vapours	U.S.A. and Canada
I	Methane	No assignment
IIA	Propane, n-Butane, Kerosene	Class I, Group D
IIB	Ethylene, Hydrogen sulphide, Ethyl ether	Class I, Group C
IIC	Hydrogen, Ethine (Acetylene), Carbon disulphide	Class I, Group B
IIC	Hydrogen, Ethine (acetylene), Carbon disulphide	Class I, Group A

Explosion protection

In order for electrical equipment to be used safely in potentially explosive atmospheres, explosion protection techniques must be taken to prevent ignition of the atmosphere. This can be prevented with different techniques, depending on the application and the equipment: Separation (o, q, m), exclusion (p), confinement (d), special mechanical design (n, e), energy limitation (ia, ib), and other measures (s). Each of these techniques is subject to national and or international standards and regulations.

Ex: Explosion protection certified according to CENELEC standard EN60079...Explosion protection certified according to CENELEC standard EN60079...complies with the applicable EN standards and contains safety measures for equipment that ensure at least the equivalent safety compared to the European standards.

Type of protection / Technology / Standards					
Labelling	Ignition protection type	Technology	CENELEC	IEC	DIN
	General requirements for all methods		EN60079-0	IEC60079-0	DIN EN60079-0
Ex d	Flameproof enclosure	Transmission of an explosion to the outside is excluded	EN60079-1	IEC60079-1	DIN EN60079-1
Ex e	Increased security	Special mechanical design	EN60079-7	IEC60079-7	DIN EN60079-7
Ex p	Pressurised enclosure	E atmosphere is separated from the ignition source	EN60079-2	IEC60079-2	DIN EN60079-2
Ex m	Potting enclosure		EN60079-18	IEC60079-18	DIN EN60079-18
Ex o	Oil enclosure		EN60079-6	IEC60079-6	DIN EN60079-6
Ex q	Sandkapselung		EN60079-5	IEC60079-5	DIN EN60079-5
Ex n	Without sparking (nA) / vapour-proof enclosure (nR)	Special mechanical design (only for zone 2 or 22)	EN60079-15	IEC60079-15	DIN EN60079-15
Ex i	Intrinsic safety	Spark energy limitation	EN60079-11	IEC60079-11	DIN EN60079-11
Ex s	Special protection	Measures other than the standardised types of protection			



The technology in detail

General information on the marking of explosion-protected equipment

Classification of the temperature classes

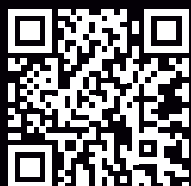
Gas-air mixtures can be ignited not only by sparks but also by contact with hot surfaces. If the surface temperature of a piece of equipment reaches the ignition temperature of the explosive atmosphere, ignition can occur. For this reason, all electrical equipment used in potentially explosive atmospheres is divided into temperature classes.

Temperature classification		
	Permissible surface temperature of the electrical equipment in °C	Permissible surface temperature of the units in °C
T1	> 450°C	450°C
T2	> 300°C ... ≤ 450°C	300°C
T3	> 200°C ... ≤ 300°C	200°C
T4	> 135°C ... ≤ 200°C	135°C
T5	> 100°C ... ≤ 135°C	100°C
T6	> 85°C ... ≤ 100°C	85°C



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